# GOVERNMENT OF THE GOLD COAST.

# MEDICAL AND SANITARY REPORT

FOR THE YEAR

1912.

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# ANNUAL REPORT OF THE MEDICAL DEPARTMENT FOR THE YEAR ENDING DECEMBER 31st, 1912.

## I.—ADMINISTRATIVE.

### Staff.

| | |
|---|---|
| 1 | Principal Medical Officer. |
| 1 | Deputy Principal Medical Officer. |
| 1 | Senior Sanitary Officer. |
| 2 | Provincial Medical Officers. |
| 2 | Senior Medical Officers. |
| 1 | Junior Sanitary Officer. |
| 49 | Medical Officers, three of whom are Medical Officers of Health, and one in charge of the Accra Laboratory. |

### Change in Staff.

The Principal Medical Officer, Dr. F. G. Hopkins, proceeded on leave on April 5th, and resumed duty on October 10th.

The Deputy Principal Medical Officer, Dr. E. H. Tweedy, returned from leave on March 29th, and acted as Principal Medical Officer during the absence on leave of the latter.

The Senior Sanitary Officer was invalided for a health trip to the Canary Islands and went on leave on August 16th, his duties being performed by the Junior Sanitary Officer, Dr. G. C. Walker.

The Provincial Medical Officer of Ashanti, Dr. H. B. S. Montgomery, proceeded on leave on April 20th, being relieved by Dr. W. W. Claridge.

The Provincial Medical Officer, Northern Territories, Dr. C. E. S. Watson, proceeded on leave on September 9th, being relieved by Dr. Collier.

The Senior Medical Officer, Dr. Hunter, proceeded on leave on September 28th, being relieved by Dr. Harper.

The Senior Medical Officer, Dr. Clough, proceeded on leave on October 11th, being relieved by Dr. J. M. O'Brien, and later by Dr. C. V. Le Fanu.

Dr. E. W. Graham was transferred to the Gold Coast Colony from Northern Nigeria, and was for some time an extra Senior Medical Officer until the transfer of Dr. C. E. S. Watson to Northern Nigeria as a Senior Medical Officer.

Drs. J. Lunn and E. Langley-Hunt, C.M.G., were transferred from the West African Medical Staff of this Colony to the Medical Department of Ceylon.

### Resignations.

Dr. A. J. Smith resigned his appointment

### Appointments.

Drs. C. L. Levers, M. Graves, F. G. Thompson and J. F. O'Donoghue were appointed during the year to the West African Medical Staff of the Colony.

### HEALTH.

The health of the Staff during the year was quite satisfactory.

### INVALIDINGS.

Dr. Brabazon was invalided to Europe after Blackwater Fever and Dr. Atkinson after Dysentery.

### DEATHS.

To the very great regret of everyone, Dr. Purkis, a very able Officer, died on February 2nd, after a short illness.

### EUROPEAN NURSES.

There was no alteration in the European Nursing Staff, which consisted of two Senior Nurses (one at Accra and one at Seccondee) and five Nurses. I am glad to report that in spite of their arduous duties and often too long hours of duty their health was satisfactory, and their services were greatly appreciated by European and Native patients.

### NATIVE STAFF.

The Native Staff have given satisfaction in the performance of their work, but it is very difficult to maintain the Staff of Dispensers and Nurses at their full strength, owing to the dearth of suitable candidates. Nursing is considered menial work by the Native, and educated youths, which they must be for nurses, prefer any work to becoming nurses. Dispensing is popular, but the education of so many of the pupils is so deficient that they fail time after time to pass an examination for a licence under Ordinance No. 14 of 1892.

The full strength of the Staff should have been as follows :—

2 first class Dispensers.
2 second class „
6 third „ „
8 fourth „ „
16 Dispensers' Pupils.
52 Nurses and Dressers.

A scheme has been submitted during the year for increasing the Staff and their pay, which it is hoped will induce more suitable candidates to apply.

The Clerical Staff of the Department has been severely taxed, as the correspondence and returns to be dealt with have increased, and are nearly double what they were 12 months ago.

The frequent changes in the Staff owing to promotions and other causes upset routine work.

To the great regret of every one in the Department, Mr. J. A. Brown, 2nd Grade Clerk, died during the year, and his loss has been severely felt in this Office and the Gold Coast Volunteers, in which corps he was a Sergeant and an active member.

Mr. G. Quansah, 3rd Grade, was invalided out of the service on account of Pulmonary Tuberculosis.

## FINANCIAL.

### STATEMENT OF RETURN FOR THE YEAR 1912.

| Hospital Fees and Receipts. | Hospital Fees. | Dispensary Fees. | Sale of Drugs. | Sale of Medical Comforts. | Totals 1912. |
|---|---|---|---|---|---|
| Hospital Fees and Receipts ... | £884 | £202 | £249 | £14 | £1,349 |

STATEMENT OF EXPENDITURE FOR THE YEAR 1912.

| —— | Estimates, 1912. | Actual Expenditure, 1912. | | |
|---|---|---|---|---|
| | £ | £ | s. | d. |
| Medical Department—Personal Emoluments ... | 37,279 | 35,873 | 2 | 5 |
| Sanitary ,, ,, ,, ... | 8,132 | 6,649 | 10 | 5 |
| | 45,411 | 42,522 | 12 | 10 |

## II.—PUBLIC HEALTH.

### (*a*) GENERAL REMARKS.

Vital statistics in this Colony at present are in their infancy, and the figures will be included in the Report of the Senior Sanitary Officer, who is the Chief Registrar under the Ordinance.

The Ordinance only began its operations in earnest in the last quarter of the year, and has met with many difficulties, as it takes a long time to get the Native accustomed to a new law.

The health of the Colony, Ashanti and the Northern Territories may be considered satisfactory, and the increase in the in-patients and out-patients does not mean more sickness, but that the native is year by year seeking and placing more reliance on European methods of treatment; and especially do they appreciate Surgery, for which there is a large field for energetic Officers.

### (I.) GENERAL DISEASES.

These do not invite so much attention in the Tropics as Communicable Diseases, and their type year by year varies very little.

### (II.) COMMUNICABLE DISEASES.

*Mosquito or Insect-borne.*

*Malaria.*—Malaria still holds its place as the most common mosquito-borne disease.

| | 1911. | 1912. |
|---|---|---|
| Cases ... ... ... | 2,303 ... | 2,268 |

Nearly 70 per cent. are reported of the Aestivo-Autumnal type, but there is no evidence to show that there was verification by a blood examination.

*Yellow Fever.*—There were seven cases of Yellow Fever reported during the year, and at the following places :—

Accra, 3 Europeans, 1 Native.
Labadi (3½ miles from Accra), 1 Native.
Seccondee, 1 European.
Axim, 1 Native.

In addition to these, four cases at Labadi were reported as exhibiting very suspicious symptoms of mild cases of the same disease.

Instructions have been issued in all cases in both Europeans and natives presenting temperature that the blood, urine, and fæces are to be examined carefully at regular intervals, so as to avoid a possible error in diagnosis.

It is so very easy to overlook this disease in the native, in whom it is of the mild type, and an early diagnosis is of great importance.

I am glad to say no epidemic of the disease occurred, thanks to the prompt measures of isolation and fumigation adopted by the Sanitary Branch, and too much credit cannot be given to Dr. Rice and his Staff.

*Filariasis.*—From the returns from the various stations it does not seem to be common. There was one case of Filaria Loa.

*Dengue.*—No cases were reported.

*Trypanosomiasis.*—Seventeen cases of Sleeping Sickness were actually under treatment during the year, being an increase of seven in the number returned as in-patients in 1911. Three deaths were recorded.

In addition to these, at the end of the year there were 87 cases under treatment as out-patients, who were regularly visited in their villages.

These cases were almost all in the Western Province of Ashanti, where, as far as our present knowledge goes, the disease is not advancing, as the new cases found have apparently had the disease for some time.

Very few recent infections are ever found.

It it well known to the Ashantis, who say it is a very old disease in their country, and they hold it in no fear.

They are very superstitious about being examined, and allege that the taking of blood smears, gland palpation and puncture bring much more dreaded ailments.

*Plague.*—I am glad to say no case was reported.

*Relapsing Fever.*—No cases.

*Pappataci Fever.*—No cases.

## INFECTIOUS AND EPIDEMIC.

*Small-Pox.*—Small-Pox again broke out in the Colony, and there were several small epidemics, but none of a serious nature.

In Ashanti one case was recorded, and in the Northern Territories none.

Concealed cases will always keep the disease alive—and there must be a great many—and also the reluctance of parents to bring their children to be vaccinated. It is only when a good many cases occur in a village or town that we get to hear of it, and then through fear they willingly seek the Medical Officer for treatment and vaccination.

It is very difficult, and I may say impossible, to ascertain the number of cases that occur, and many of the natives still adhere to their native methods of treatment.

| | Cases. | Deaths. |
|---|---|---|
| 1911 | 176 | 29 |
| 1912 | 221 | 33 |

The statistics about Vaccination will appear in the Report of the Senior Sanitary Officer.

Very little local Lymph was used during the year.

*Chicken-Pox.*—There was a great increase in the number of cases of Chicken-Pox during the year, as will be seen from the figures appended.

My experience is that this disease amongst the Negro is highly infectious and spreads rapidly. It is very difficult to deal with when it breaks out in gaols.

| | Cases. | Deaths. |
|---|---|---|
| 1911 | 40 | *Nil* |
| 1912 | 314 | *Nil* |

*Enteric Fever.*—There were four cases reported and two deaths. More information is required as to its prevalence in West Africa.

*Dysentery.*—There is a very large increase in the number of cases this year, and it is to be accounted for by more careful clinical work on the part of the Medical Officers, and more natives seeking treatment.

I feel confident that many mild cases of Dysentery were recorded in the past as Diarrhœa.

It will always continue a very prevalent disease, owing to the difficulty in obtaining good water and the native apathy about boiling it.

| | Cases. | Deaths. |
|---|---|---|
| 1911 | 369 | 19 |
| 1912 | 549 | 29 |

*Yaws.*—This disease is extremely prevalent, and unless it is a very severe case treatment is neglected and some native method adopted.

Some West African tribes do not consider a male a proper tribal member until he has had Yaws, and mothers often inoculate their male children.

| | Cases. |
|---|---|
| 1911 | 627 |
| 1912 | 535 |

*Gonorrhœa.*—There was an increase in the number of cases of this disease.

The natives have many methods of treating this disease, and patent medicines also are freely used by the educated ones.

| | Cases. |
|---|---|
| 1911 | 562 |
| 1912 | 698 |

*Syphilis.*—There was a large increase in the number of cases treated and the disease seems to be on the increase.

| | Cases. | | |
|---|---|---|---|
| | Primary. | Secondary. | |
| 1911 | 157 | 218 | Total 375 |
| 1912 | 120 | 426 | ,, 546 |

*Tuberculosis.*—There was a decline in the number of cases treated, but an increase in the fatal cases.

| | Cases. | Deaths. |
|---|---|---|
| 1911 | 292 | 10 |
| 1912 | 135 | 13 |

*Measles.*—There were 45 cases of Measles treated. It is probably much more common, and unless severe would not come under the notice of the Medical Officers.

| | Cases. | Deaths. |
|---|---|---|
| 1911 | 4 | Nil |
| 1912 | 45 | Nil |

*Whooping Cough.*—This disease does not seem common, or else we do not see the cases.

| | Cases. | Deaths. |
|---|---|---|
| 1911 | 12 | Nil |
| 1912 | 3 | Nil |

*Rabies.*—There was one case reported.

### *Helminthic Diseases.*

*Ankylostomiasis.*—Only 4 cases were under treatment compared with 2 the previous year.

There was one death.

*Tænia.*—There were 456 cases treated in the hospitals and dispensaries of the Colony during the year.

*Trematodes.*—There were 48 cases of Trematode Disease reported, but no record as to how the diagnosis was arrived at was given.

*Bilharzia.*—There were 13 cases during the year, being 16 less than 1911.

*Guinea Worm.*—This disease was again very common, and it must continue to be so, as long as the Native drinks his water from wherever he may find it.

| | Cases. |
|---|---|
| 1911 ... | 1152 |
| 1912 ... | 1293 |

*Ascarides.*—Only 117 cases came under our notice.

| | Cases. |
|---|---|
| 1911 ... | 149 |
| 1912 ... | 117 |

The prevalence of sickness in the Colony does not seem to vary much at the different seasons. Chest complaints are more common during the Harmattan Season, and Dysentery and Intestinal ones usually after the rains.

## (*b*) EUROPEAN OFFICIALS.

There were 586 European Officials serving in the Gold Coast Colony during the year 1912, an increase of 20 over the previous year 1911.

There was a slight increase in the number placed on the sick list, but a decrease in the total number of days on it.

The average daily number on the sick list and the average number of days on the sick list for each patient show a decline, which is satisfactory.

The most remarkable decrease is in the total number invalided, and the percentage of invalidings to total residents.

Unfortunately the number of deaths for 1912 is exactly double that for 1911, but two of them were from causes other than climatic.

The percentage of sick to average number resident is very high, and can only be accounted for by the fact that Officials are in a great many instances careless about their health, and the ease with which they are able to obtain medical attendance.

### Table showing the Sick, Invaliding and Deaths Rate of European Officials.

| | 1910. | 1911. | 1912. |
|---|---|---|---|
| Total number of officials resident ... ... ... | 475 | 566 | 586 |
| Total number on sick list ... ... ... ... | 438 | 470 | 483 |
| Total number of days on sick list ... ... ... | 3,074 | 3,214 | 2,886 |
| Average daily number on sick list ... ... ... | 8 | 8 | 7 |
| Average number of days on sick list for each patient... | 7 | 6 | 5 |
| Total number invalided ... ... ... ... ... ... | 32 | 27 | 13 |
| Percentage of invalidings total residents ... ... | 6·73 | 4·77 | 2·21 |
| Total deaths ... ... ... ... ... ... ... | 8 | 4 | 8 |
| Percentages of deaths to total residents ... ... | 1·68 | 0·70 | 1·36 |
| Percentage of deaths to average number resident ... | — | — | 1·56 |
| Average number resident ... ... ... ... | — | — | 510 |
| Percentage of sick to average number resident ... | — | — | 94% |
| Average sick time to each resident ... ... ... | — | — | 5·65 |
| Number of cases of sickness contracted away from residence ... ... ... ... ... ... | — | — | — |

The principal diseases from which Officials suffered were as follows:—

| | |
|---|---|
| Malaria ... ... ... ... | 269 |
| Blackwater Fever ... ... ... | 6 |
| Yellow Fever ... ... ... | 2 |
| Bilious Remittent ... ... ... | 2 |
| Diarrhœa ... ... ... ... | 27 |
| Gastritis ... ... ... ... | 26 |
| Injuries ... ... ... ... | 20 |
| Febricula ... .. .. ... | 17 |
| Biliary Catarrh ... ... ... | 11 |
| Furunculosis ... ... ... | 9 |
| Dyspepsia ... ... ... ... | 8 |
| Ptomaine Poisoning ... ... | 8 |

It will be seen that Malaria heads the list with 269, but there are not sufficient data to show that the diagnosis was verified by a microscopic examination of the blood.

Owing to the endemicity of Yellow Fever (practically admitted by most careful observers), more careful and extended observations are necessary in all cases of temperature in which the presence of Malaria have not been demonstrated.

In new-comers especially the greatest care should be exercised.

Blackwater Fever accounted for 1 per cent., and Bilious Remittent Fever and Yellow Fever for 2 per cent. each.

Malarial prophylaxis is still to a great extent sneered at by the laymen, and undoubtedly the number of cases of Malaria remains high owing to that fact, and efficiency is impaired thereby.

### Causes of Invaliding.

| | |
|---|---|
| Biliary Catarrh ... ... ... | 1 |
| Neurasthenia ... ... ... | 2 |
| Malaria ... ... ... ... | 3 |
| Blackwater Fever ... ... ... | 2 |
| Neuritis ... ... ... ... | 1 |
| Concussion of the Brain ... ... | 1 |
| Incised Wounds ... ... ... | 1 |
| Serpigenous Ulcer ... ... ... | 1 |
| Adenitis ... ... ... ... | 1 |
| | 13 |

Of the above only five cases can be fairly classed as climatic.

### Causes of Death.

| | |
|---|---|
| Yellow Fever ... ... ... | 2 |
| Blackwater Fever ... ... ... | 2 |
| Pulmonary Embolism ... ... | 1 |
| Mitral Stenosis ... ... ... | 1 |
| Malaria ... ... ... ... | 2 |
| | 8 |

It will be observed that only two are due to causes other than climatic.

## (c) NATIVE OFFICIALS.

There were 1,164 Native Officials serving in the Colony during 1912, being 40 more than the previous year. The total number on the sick list shows an increase, and also the total number of days on the sick list.

The largest increase shown is in the average total number on the sick list, which rose 60 per cent.

This I am unable to account for.

### Table showing the Sick, Invaliding & Death Rate of Native Officials.

| | 1910. | 1911. | 1912. |
|---|---|---|---|
| Total number of officials resident ... ... ... | 922 | 1,124 | 1,164 |
| Total number on sick list ... ... ... ... | 420 | 369 | 502 |
| Total number of days on sick list ... ... ... | 3,400 | 2,507 | 3,795 |
| Average daily number on sick list ... ... ... | 9 | 6 | 10 |
| Average number of days on sick list for each patient .. | 8 | 6 | 7 |
| Total number invalided ... ... ... ... ... | 7 | 10 | 10 |
| Total deaths ... ... ... ... ... ... | 1 | 8 | 4 |
| Percentage of death to total residents ... ... ... | 0·10 | 0·71 | 0·34 |
| Percentage of deaths to average number resident ... | — | — | 0·37 |
| Average number resident ... ... ... ... | — | — | 1,056 |
| Percentage of sick to average number resident ... | — | — | 47 % |
| Average sick time to each resident ... ... ... | — | — | 3·59 |
| Number of cases of sickness contracted away from residence ... ... ... ... ... ... | — | — | — |

### Causes of Invaliding.

| | |
|---|---|
| Phthisis ... ... ... ... | 3 |
| Blackwater Fever ... ... ... | 1 |
| Osteitis of Femur ... ... ... | 1 |
| Peripheral Neuritis... ... ... | 1 |
| Neurasthenia ... ... ... | 1 |
| Defective Vision ... ... ... | 1 |
| Chronic Neuritis ... ... ... | 1 |
| Chronic Orchitis ... ... ... | 1 |
| | 10 |

The case of Blackwater Fever was in a West Indian Police Superintendent, and was not his first attack.

### Causes of Death.

| | |
|---|---|
| Gastritis ... ... ... ... | 1 |
| Malaria ... ... ... ... | 1 |
| Pneumonia ... ... ... ... | 1 |
| Phthisis ... ... ... ... | 1 |
| | 4 |

It is unusual for a Native to die of Malaria in adult life.

The patient was a native of Sierra Leone; and it is possible that it may not have been Malaria, but some other endemic disease.

## (*d*) GENERAL EUROPEAN POPULATION.

(I.) Government Officials.
(II.) Employés of Trading Firms.
(III.) Employés of Mining Companies.
(IV.) Missionaries.

The European population again shows an increase, but not so marked an one as 1911.

The principal increase is amongst the merchants, which shows the development of trade.

The deaths number 20 for the year, 13 less than in 1911, but the invalidings have increased by eight.

### TABLE SHOWING THE SICK, INVALIDING & DEATH RATE OF NON-OFFICIALS.

| How employed. | Number. | Deaths. | Invalided. | Death rate per cent. | Invaliding rate per cent. |
|---|---|---|---|---|---|
| 1910. | | | | | |
| Merchants ... ... | 422 | 16 | 7 | 3·79 | 1·65 |
| Mining Companies ... | 660 | 18 | 33 | 2·72 | 5·00 |
| Missionaries ... ... | 135 | 4 | 2 | 2·96 | 1·48 |
| Totals ... ... | 1,217 | 38 | 42 | 3·12 | 3·45 |
| 1911. | | | | | |
| Merchants ... ... | 605 | 14 | 20 | 2·31 | 3·30 |
| Mining Companies ... | 922 | 16 | 31 | 1·73 | 3·36 |
| Missionaries ... ... | 152 | 3 | 3 | 1·97 | 1·97 |
| Totals ... ... | 1,679 | 33 | 54 | 1·96 | 3·21 |
| 1912. | | | | | |
| Merchants ... ... | 668 | 7 | 24 | 1·04 | 3·59 |
| Mining Companies ... | 953 | 11 | 35 | 1·15 | 3·67 |
| Missionaries ... ... | 160 | 2 | 3 | 1·25 | 1·87 |
| Totals ... ... | 1,781 | 20 | 62 | 1·12 | 3·48 |

### CAUSES OF INVALIDINGS.

| | |
|---|---|
| Blackwater Fever ... ... ... | 6 |
| Malaria ... ... ... ... | 22 |
| Heart Disease ... ... ... | 1 |
| Colitis ... ... ... ... | 2 |
| Anæmia ... ... ... ... | 3 |
| Dysentery ... ... ... ... | 6 |
| Nephritis ... ... ... ... | 1 |
| Accident ... ... ... ... | 2 |
| Dyspepsia ... ... ... ... | 1 |
| Gastritis ... ... ... ... | 2 |
| Hæmaturia ... ... ... ... | 1 |
| Hepatitis ... ... ... .. | 1 |
| Jaundice ... ... ... ... | 1 |
| Malarial Boils ... ... ... | 1 |
| Pneumonia ... ... ... ... | 1 |
| Neurasthenia ... ... ... | 2 |
| Pleurisy ... ... ... ... | 1 |
| Phthisis ... ... ... ... | 2 |
| Syphilis ... ... ... ... | 2 |
| Synovitis of Knee ... ... ... | 1 |
| Pyelitis ... ... ... ... | 1 |
| Pneumokoniosis ... ... ... | 2 |
| | 62 |

CAUSES OF DEATH.

| | |
|---|---|
| Yellow Fever ... ... ... | 2 |
| Blackwater Fever ... ... ... | 3 |
| Heart Failure (Hyperpyrexia) ... | 3 |
| Accident ... ... ... ... | 2 |
| Dysentery ... ... ... ... | 1 |
| Malaria ... ... ... ... | 3 |
| Typhoid ... ... ... ... | 1 |
| Nephritis ... ... ... ... | 2 |
| Pneumonia ... ... ... ... | 2 |
| Siriasis ... ... ... ... | 1 |
| | 20 |

### (*e*) GENERAL NATIVE POPULATION.

By the Senior Sanitary Officer in his Report.

## III.—SANITATION.

By the Senior Sanitary Officer in his Report.

## IV.—METEOROLOGICAL.

Eight stations take Meteorological Observations in this Colony, six on the seaboard and two inland.

Ashanti has three stations and the Northern Territories two.

At all except one station (Aburi) they are taken by the Medical Officers, and I think their accuracy can be assured.

1912 has been the driest year during the last three.

The Statistics form an Appendix to this Report.

## V.—HOSPITALS AND DISPENSARIES.

On the whole I can report that the Hospitals and Dispensaries in the Colony, Ashanti and Northern Territories, have been maintained in an efficient manner during the year under review.

### ACCRA.

The new European Hospital is not yet completed, but good work has been done in the old one, and it has been made as thoroughly mosquito-proof as it is possible to make a building not originally designed for such a measure.

The Native Hospital is very old, and quite inadequate for the needs of the town and district when an energetic Officer is in charge of it.

By order of his Excellency the Governor, a site for a new and thoroughly up-to-date Native Hospital is being sought for, and will shortly be decided on.

### SECCONDEE.

Good work has been done in the European Hospital here, and 154 patients were treated during the year, double the number treated at Accra.

The building is mosquito-proofed, but in all old and badly designed buildings this protection can never be really efficient.

It is hoped that at no distant date a new European Hospital will be erected, and the present building converted into a Native Hospital.

The Native Hospital has had a very busy time, and good work has been done.

Some accommodation for females has been added, and the hospital itself partially mosquito-proofed.

It is very badly situated in a hollow, below the European Hospital, and about 40 yards from it.

## Coomassie.

Fifty-two Europeans were treated in the European Hospital during the year.

Plans for a new hospital are being made.

The Native Hospital has been for some years inadequate for the needs of Coomassie, and a new one is being erected in close proximity to the old one.

The idea is to alter the old one and keep it strictly for soldiers and police.

Coomassie being an advancing place, the medical work is increasing every year.

A new Contagious Diseases Hospital is also being erected.

The above are the principal hospitals, and the nursing is under the supervision of European Nurses. The other hospitals are really only for natives, except Cape Coast, which has a nicely situated Native Hospital, but in exceptional circumstances, as will be seen from the statistics, Europeans are admitted into them.

They are generally those who cannot be looked after properly in their own quarters.

New Contagious Diseases Hospitals are being erected at all the principal stations, and all are to be thoroughly mosquito-proofed.

## Mosquito-Proofing of Hospitals.

Very varying opinions are given from time to time as to whether all Hospitals, both European and Native should be mosquito-proofed or not.

My own opinion, and my experience extends over 18 years, is that they should be, and that all new hospitals should be designed with that idea, so that complete proofing may be combined with proper ventilation. It has been urged that it deteriorates rapidly and is expensive to maintain; but in a country like West Africa, where mosquito and insect-borne diseases are most prevalent, it is absolutely essential that the healthy should be protected from the sick, and there is no other means at our disposal for achieving this except by treating the sick under mosquito-proof conditions. If we profess to treat the sick we must be prepared to meet the expense and trouble involved thereby.

The number of Europeans and Natives treated in the Hospitals and Dispensaries of the Colony, Ashanti, and the Northern Territories, with comparison from the two previous years, is as follows :—

| Cases. | | Deaths. | Deaths Rate per 1,000. |
|---|---|---|---|
| In and out-patients. | | In and out-patients. | |
| 1910 ... | ... 43,932 | 271 | 6·16 |
| 1911 ... | ... 42,389 | 184 | 4·34 |
| 1912 ... | ... 46,234 | 257 | 5·55 |

## LUNATIC ASYLUM.

The treatment of Insanity in West Africa is not at all satisfactory, as the cases that are admitted to the Asylums are always of the later or chronic type of the disease.

It is only when the insane become a nuisance to their relatives, or are without means, that notice is drawn to them, and on admission they are usually in a debilitated condition.

Where a native becomes insane he is usually taken away from his home to some medicine man in the bush, whose treatment, though rarely scientific, is heroic.

To study insanity properly one would have to be a more than average scholar in the various dialects.

### Escapes.

Two lunatics escaped and were never captured.

### Food.

The food, which is supplied by a contractor, was of average quality. So many different tribes are represented among the inmates that it is difficult to provide food suitable to each, and food stuffs are both scarce and dear in Accra.

### Water Supply.

Chiefly rain water from an underground tank in the yard, but in the very dry season we have to get water elsewhere.

The tank should never have been erected inside the building, but as water will soon be laid on its removal has not been effected.

If fuel were available I should have all drinking water boiled.

### Occupation.

Those that are fit, mentally and physically, do cleaning in the Asylum and sanitary work connected with it.

Some are employed in gardening and cleaning the roads and pathways near the Asylum. Most of them refuse to work at all.

### Staff.

The Staff was increased during the year by four.

### Mortality.

The mortality, excluding discharges, works out at 24·6 %.

This appears very high, but when the physical condition of these lunatics is taken into account on admission it is not so.

Our inmates are usually brought long journeys, some from the Northern Territories, and naturally arrive in a weak condition, and into surroundings they are not accustomed to.

The following table shows the number of inmates during the year and other particulars :—

| | Remaining at the end of 1911. | Admitted during 1912. | Total under treatment 1912. | Discharged. | Deaths. | Remaining 31st December, 1912. |
|---|---|---|---|---|---|---|
| Male ... ... ... | 77 | 113 | 4 | 4 | 26 | 83 |
| Female ... ... ... | 15 | 7 | 22 | 1 | 6 | 15 |
| Total ... ... | 92 | 120 | 26 | 5 | 32 | 98 |

## PRISONS.

The health in the Prisons in the Colony and Ashanti has on the whole been satisfactory.

There was a slight outbreak of Chicken-Pox in the Seccondee Prison. I have already commented on the difficulty of stamping this disease out in such institutions.

The number of Convicts show an increase.

| | 1910. | 1911. | 1912. |
|---|---|---|---|
| Total convicts ... ... ... ... ... ... | 3,001 | 5,474 | 6,064 |
| Total sick ... ... ... ... ... ... | 385 | 466 | 701 |
| Total deaths ... ... ... ... ... ... | 18 | 10 | 18 |

Two deaths occurred from Dysentery in Obuasi Gaol.

The statistics about Gaols are given in Table VI. of the Senior Sanitary Officer's Report.

It will be observed that he has included executions in his death return of which seven took place.

## VI.—SCIENTIFIC.

### ACCRA LABORATORY.

This Laboratory dates its origin from the time of the Plague in Accra and district in 1908. It was originally a Contagious Diseases Hospital. It is well equipped, and from the Report, which is attached, it will be seen that both Dr. J. M. O'Brien and Dr. Connal did useful work there.

I may mention that Dr. Connal took charge of the Lunatic Asylum as well, which is close to the Laboratory.

F. G. HOPKINS,
*Principal Medical Officer.*

ACCRA,
23*rd July*, 1913.

# ANNUAL REPORT ACCRA LABORATORY, 1912.

Accra, 21*st April*, 1913.

Sir,

I have the honour to send you the Annual Report of the Laboratory for 1912.

Work has been continuously in progress since 16th May, except during two periods of a fortnight each, when assistance was being given at Komfrodua in connection with Sleeping Sickness, and at Axim where a case of Yellow Fever occurred. Dr. J. M. O'Brien was in charge in January, and his work is included in this Report.

Various repairs were being effected from February until April, Mr. S. Smith being in attendance.

The work has been mainly of a routine nature, consisting of the examination of Clinical material from the Hospital, and the preparation of Vaccine Lymph. These duties practically absorbed all the official hours, leaving but little opportunity for research. Nevertheless, the results collected will be useful, and will serve to indicate lines of investigation.

In addition to the above, mosquito-larvæ from the various parts of Accra have been reared and identified.

Slaughterhouse blood-smears and diseased tissues have been regularly examined.

Several water-analyses have been made.

A certain amount of medico-legal work has been done.

Blood-sucking insects and parasitic worms have been collected and preserved.

The Museum has been added to.

A considerable quantity of new apparatus has been acquired.

Many new books have been placed in the Library.

The Medical journals have been preserved.

## Vaccine Lymph.

Lymph has been prepared, at weekly intervals with few interruptions, since June.

Dr. G. E. H. Le Fanu, in 1909, showed that an active vaccine could be prepared locally. Its manufacture on a large scale began in 1910. The annual Report of 1911 gave the details of all the experiments carried out by Dr. J. M. O'Brien. The procedure followed at present is that originated by him, and his methods are here shortly recapitulated.

A Hausa butcher in the town provides a reliable weekly supply of calves at the rate of 15s. After the lymph has been collected, the animal is slaughtered and examined. There is a well-built calf-shed in connection with the Laboratory. The floor and walls are of smooth concrete and all corners are rounded. The walls are breast high and the roof is supported on pillars. The four stalls at one end for calves are separated from the wall by a passage-way, and there is a hinged table and other apparatus at the other end, on which the calf is strapped. When the animal arrives it is put on the table and the temperature is taken per rectum. The skin is cleared of ticks, and a blood-smear is examined. Everything being satisfactory, the chest, abdomen, and thighs are well scrubbed with carbolic soap and water. The parts are then shaved and again washed with sterile water. Thereafter, scarifications in parallel lines are made and the lymph well rubbed in. Preference is given to calves with a soft white skin, and males are chosen because of the fine result of inoculation of the scrotum. The usual age of the animal is between five and eight months.

After an interval of seventy-two hours, the vesicles are scraped off and the material so collected is weighed.

Four times the weight, of equal parts of glycerine and water, previously sterilised, are added, and the whole is ground in the Chalyban's machine, to a fine cream.

The prepared lymph is stored in the ice chest. A guinea-pig is inoculated subcutaneously, and both ærobic and anærobic cultures are made at intervals. For distribution the vaccine lymph is put up in tubes sufficient for 100, 200, or 500 insertions. The cork is sealed with paraffin, and they are packed in wooden boxes, and despatched by registered post. A sufficient supply for emergencies is always kept on hand.

Dr. O'Brien notes the possibility of danger arising from the transmission of the following infections.

*Tuberculosis.*—Experience of over two years careful scrutiny in the slaughter-house points to the conclusion that tubercular disease in the local cattle is extremely rare.

*Tetanus.*—Here there appears to be a definite danger, which can only be guarded against by making cultivations from the lymph. Dr. O'Brien isolated the Bacillus from the soil near the calf-shed. He also found it in one of the lymph-series.

*Trypanosomiasis.*— The experiments made by Dr. O'Brien are here quoted. A trypanosome fatal to the guinea-pig was obtained from a horse. A drop of blood from a heavily-infected guinea-pig was mixed with a drop of vaccine lymph, on a hollow slide, and the cover-glass ringed with vaseline. The movements of the trypanosome were slow and feeble within one and a half hours at room temperature, say 84° F. After sixteen hours in the ice-chest no trypanosomes were found nor could any be seen on staining. Another quantity of blood from the guinea-pig was mixed with an equal quantity of vaccine lymph, thoroughly shaken and placed in the ice-chest. Two fresh guinea-pigs were inoculated from this material after an interval of two and a half days, with a negative result. After fourteen days two more guinea-pigs were inoculated, no infection following.

*Sepsis.*—Staphylococci are usually abundant in the first cultivations from the lymph, but die out later, an occurrence which takes place more quickly at room temperature. Streptococci and other pyogenic organisms have been rare. The *Bacillus pyocyaneus* has occasionally been found. The real dangers are from Tetanus, Sepsis and unknown diseases of cattle. The physical condition of the animal, the rectal temperature, and the blood examination are the means relied on in selecting a healthy calf. Strict asepsis in the surroundings and in the actual process of manufacture guards against Tetanus and Sepsis. As a further precaution, plates are poured weekly for four weeks. The lymph is despatched so as to reach its destination by the end of the fourth week; thus allowing time for its use to be countermanded by telegram in the event of contamination being discovered. Additional precautions include the inoculation of a guinea-pig, and a thorough examination of the carcase of the calf, in the slaughter-house.

Records are kept in the Laboratory of the date (both of inoculation and collection of lymph), the age, colour, condition, sex and temperature of the calf, the quantity and quality of the material yielded, and any other noteworthy features.

A special Form is supplied to each vaccinator, with particular columns in which to note the details of the effect.

Table I. gives the results, so far as they have come to hand. The Stations have sent in 12 returns, which embrace a total of 2,605 vaccinations. Enough lymph for over ten times that number has been sent out, but for various reasons the collection of the statistics has been delayed. The Table does not separate primary from secondary or other vaccinations. Primary cases numbered 2,378 with 87·94 per cent. successes. If 204 cases, where the lymph used was over three months old, be deducted, the percentage rises to 94·98 successes. Amongst re-vaccinations, which totalled 227, the percentage was 42·72 successes.

These results are not so good as those obtained in 1911. The explanation lies in the paucity of the figures, and in the liberties which were taken with the vaccine in the Laboratory, such as storing it without ice, and keeping it for about two months before use.

Twenty-nine calves were inoculated, and lymph was sent out from 27, the material from the remaining two having been condemned on account of an unpleasant odour.

The average yield of crust per calf was 8·3 grammes. It may be stated in explanation of the early period at which the vesicles are collected from the calf (72 hours), that vesiculation occurs at an earlier period than with the home lymph, and that a longer interval allows pustulation to occur.

## BLOOD-SMEARS.

Most of the results have been already tabulated each month for the Sanitary Returns. Fuller particulars and some conclusions are here given.

The total number of blood-smears examined was 450. These were all dried, stained specimens, but many wet films were also used. Seventy-three were from Europeans. Subtertian parasites were those most commonly found, there being nine, and only one case of benign tertian.

Pigmented mononuclear leucocytes occurred in an additional 16 cases, so that the percentage of Malarial infection was 35·63 of the total. Embryos of *Filaria perstans* were seen on one occasion.

Malarial parasites were observed in 21 out of 323 adult natives, subtertian in 14 and quartan in seven.

Pigmented leucocytes were found in an additional 14 cases, giving 10·83 as the percentage infection. Trypanosomes were found in the blood in two instances. Embryos of *Filaria perstans* were noticed in five cases, and those of *Loa Loa* in two.

Thirty-nine blood-smears from native children aged up to 3 years, showed parasites in 23. Twelve of these were subtertian, ten were quartan, and one was benign tertian. Pigmented white cells occurring in other seven cases brings the figures to 76·92 per cent. infected with Malaria. Eleven infections, quartan in six and subtertian in five, were noted in 30 children aged between three and eight years. Other four showed pigment in the cells, making 50 the percentage with evidence of Malaria.

No parasites were seen, but pigmented mononuclear cells occurred in two out of five adolescents, aged between eight and fifteen years.

It must be borne in mind, when weighing these figures, that they are based upon the examination of the sick, not of the healthy.

Neither trypanosomes nor filarial embryos were detected in the blood of any of these 74 native children.

Table II. gives the figures in their columns, and Table III. shows graphically the proportion of the infected in the several arbitrary groups.

The great majority of the cases of Malarial Fever amongst Europeans occurred in those who had been in other districts, and in those who lived in or near the native town. There were few cases amongst the officials in Victoriaborg, where anopheline breeding places have been eradicated, where segregation is practised as far as circumstances will allow, and where thick bush is being cleared from the compounds and open spaces.

The incidence of Malaria amongst adult natives goes to show that such immunity to the parasite as is gained in childhood is not complete, and a previous statement regarding this immunity must be qualified. There are indications that, under circumstances, the resistance to the infection may be modified or lost. The conditions which may lead to an attack of Malarial Fever in the adult native would appear to be (1) a new environment, involving change of climate, different food, crowded quarters, unusual hours of work, unaccustomed labour, and other alterations in a previous routine, (2) chronic and debilitating diseases, such as long standing ulcers, hernia, hydrocele, and bad fractures. A typical subject would be a police recruit, arriving from a distant part of the country. It must also be borne in mind that sanitary measures have done away with most of the breeding areas for anophelines in Accra, so much so that on occasions anopheline larvæ have been found in various domestic utensils, a most unusual place. The number of mosquito-carriers of the disease is therefore relatively small, and the native inhabitants are not constantly receiving bites, which no doubt convey the inoculations which serve to keep up their immunity. This hypothesis is strengthened by the much larger percentage of infection in children than in adults. The opposite state of affairs holds good in such a town as Quittah, where a large fresh-water lagoon affords a breeding place for countless mosquitoes all the year round. There, Malarial Fever in adults appears to be extremely rare, although many of them harbour the parasite, apparently in a quiescent state, and in small numbers. It seems conceivable that adult natives may remain immune from the fever as long as they live in a malarious district where infected mosquitoes abound, and they keep from enervating influences.

The comparatively low percentage of children found suffering from Malaria is again attributable to the sanitary improvements in Accra. The figures are all the more striking when it is remembered that they are based almost entirely on the sick who were brought to hospital.

A differential leucocyte count was made on all the smears submitted. A uniform procedure of making the film and of staining it was adopted, to ensure comparable results. A modification of Giemsa's eosin-azur staining method was used.

The humid atmosphere, allowing caking to take place and fungi to grow, and the house flies were the main causes of spoiled specimens. An entire blood-smear, before fixation, may be cleared off by a fly in a few minutes.

At least 500 leucocytes were counted, as a basis on which to calculate the percentages. It was found, over the whole series of examinations, that the polymorphonuclear cells tended to predominate along the edges, while the lymphocytes were relatively more abundant in the body of the film.

The large mononuclear cells preponderated also along the margins, but more particularly at the terminal area. The greater bulk, and possibly also the motility of these cells influence their disposition, as trypanosomes and the more advanced forms of the material parasites have a similar distribution in a stained specimen of blood.

It is for this reason that 250 leucocytes were counted along the edges, and the remainder in the middle parts of each smear.

Table IV. shows a few examples of the number of the different leucocytes counted in the two areas of the slide.

It has been thought that some attempt should be made to establish a normal differential leucocyte count for inhabitants of these parts ; consequently all the results obtained during 1912 have been added to the other material previously collected in other parts of West Africa by the one observer. An average has been taken from a total of 1,178 differential counts. The figures for all ages are :—

| | |
|---|---|
| Polymorphonuclear Neutrophil cells ... ... ... ... | 39·77 per cent. |
| Lymphocytes ... ... ... | 33·87 per cent. |
| Large Mononuclear cells ... | 16·08 per cent. |
| Polymorphonuclear Eosinophil cells ... ... ... ... | 7·81 per cent. |
| Transitional cells ... ... | 2·16 per cent. |

For adult natives, the figures based on 722 counts, in the above order, are :—44·86 per cent., 29·15 per cent., 16·19 per cent., 7·24 per cent., 2 per cent.

The relative proportions of the different leucocytes, in children aged up to 5 years, based on 309 cases are, in the same order, 31·9 per cent., 42·33 per cent., 15·59 per cent., 8·06 per cent., 2·49 per cent.

The average for 147 children between 5 and 15 years of age are 31·34 per cent., 39·4 per cent., 16·64 per cent., 10·06 per cent., 2·23 per cent.

It will be seen that, from the accepted home standards, the polymorphonuclear neutrophil percentage is low.

The conditions in adult negros, in this respect, closely approximate those found in British children. A count of over 50 per cent. is to be regarded as a polynuclear leucocytosis. The disease in which the highest relative proportion of these cells occurred was acute Lobar Pneumonia. Here a percentage of over 80 was usual, and on one occasion it reached 94·8 per cent. This is probably intimately connected with the acute inflammatory conditions which so frequently complicate the disease in natives, *e.g.*, Pericarditis and Empyema.

The large mononuclear cells were always numerous, a phenomenon which is no doubt closely associated with the occurrence of Malaria. There are indications that it also depends, to some extent, on the presence of helminths, mainly intestinal, to which parasites the Negro is a generous host. The highest large mononuclar counts occurred in Beri-Beri and in Trypanosomiasis.

The lymphocytes show a high average which again brings the blood picture closely into line with that existing for European children. It has been at times difficult to distinguish between a large lymphocyte and a small mononuclear cell. Generally speaking the leucocyte goes into the former category when its size does not exceed that of a polymorphonuclear variety. The presence of pseudopodia occasionally aids in the distinction. Very frequently, even in adult natives, the lymphocytes have reached a higher percentage than the polymorphs. In acute conditions, however, they are generally low. They have been few in number in the cases of Yellow Fever that have been examined.

An eosinophilia is the rule. In some cases, although these have been rare, the eosinophil cells have shown a higher percentage than any of the other varieties. The number is only small when there is a marked polymorphonuclear increase. As pointed out by several observers, a low percentage of eosinophils has been noted in several cases where there has undoubtedly been present a big helminthic infection, the indication being that the condition is grave and the reaction poor. Transitional cells vary within small limits. Myelocytes occur fairly frequently in Malaria, in Trypanosomiasis and in Anæmias generally. Basophil myelocytes have been noticeable in cases of Yellow Fever.

With regard to the changes in the differential leucocyte count in Yellow Fever, it is not intended to draw definite conclusions from the few cases which have been examined. It may be said that the alterations are in line with those occurring in Malarial Fever; a polynuclear increase, with a low lymphocyte count and with the mononuclears somewhat more numerous than the lymphocytes, being found in the early stages. Later there is a fairly rapid drop in the polymorphs, a corresponding rise in the lymphocytes, and a small but steady increase in the number of mononuclear cells. The *Paraplasma flavigenum* was not observed in any of the cases, but the method of staining at that time would not, according to Seidelin, bring out his parasites.

Mast cells were found in practically every specimen of blood examined, no matter what the disease. It was noticed that several kinds or variations of mast cells occurred. The two extremes were—on the one hand a cell similar to the ordinary polymorph, except in the brown staining of the granules and the larger size; and on the other hand, a larger cell staining very deeply indeed (crowded with very large granules) so that the nucleus could be with difficulty recognised. The "chrome-cell" of Leishman, where the colour is most intense at the periphery, giving the appearance of encapsulation, was seen in a number of cases. Occasionally such an one, with its large circular or ring-shaped contents lying free, was observed, but it was thought at the time that rupture had taken place in the spreading of the film, eosinophil cells very frequently showing this appearance of having been burst. Such observations as were made on this cell are in agreement with the explanations of Schilling-Forgau. (Journ. Trop. Med. Hy. No. 24, Vol. XV., 16th December, 1912.)

The average percentage of mast cells at the different age periods is here quoted. At the ages up to five years the proportion is 0·23 per cent. in 309 cases. Between the ages of 6 and 15 years, 0·32 is the percentage (147 cases), while in adult natives the figure in 722 cases is 0·36 per cent.

With regard to other cell inclusions, chromatin dots and masses, of varying size, few or numerous, were frequently observed in the large mononuclear cells and in the lymphocytes. They were so frequently observed in man and in the lower animals, both in health and in disease, that no definite pathological importance was attached to them.

## TRYPANOSOMIASIS.

The three cases which were proved by the finding of the parasite in the blood-stream (two cases) and in the cervical glands (one case) were all imported. The blood and gland juice from a number of other patients were examined, at various times, with negative results. Especially was this so amongst the inmates of the Lunatic Asylum, many of whom presented enlarged cervical glands, and whose insanity may be a manifestation of Sleeping Sickness. A systematic examination of these patients is in progress.

## FILARIASIS.

The finding of filarial embryos in all the eight cases has been a chance one, occurring in the routine of the clinical work. There were no signs or symptoms referable to such an infection. This emphasises the value of a blood examination in all hospital patients.

## ERYTHROPHAGOCYTOSIS.

Large mononuclear erythrophagocytes have been observed in a number of cases, including Yellow Fever, Trypanosomiasis, Malaria and Filariasis. They were also seen, in many instances, where no parasites were demonstrated, and no diagnosis was made.

## Differential Leucocyte Count in Europeans.

The average proportions in 181 specimens are :—

| | |
|---|---|
| Neutrophil Polymorphonuclear cells | 58·51 per cent. |
| Lymphocytes | 19·09 per cent. |
| Large Mononuclear cells | 16·04 per cent. |
| Eosinophils | 2·97 per cent. |
| Transitionals | 2·81 per cent. |
| Mast cells | 0·42 per cent. |

It will be seen that the neutrophil polymorphs are lower than normal, and the large mononuclears are correspondingly higher.

## Mosquito Larvæ.

Between 19th August and 17th December, 110 bottles of larvæ, from compounds in the town, were sent to the Laboratory. *Stegomyia fasciata* was present in 99 of these samples. The other mosquito larvæ found were *Culex decens*, *C. fatigans*, *C. tigripes*, *Culiciomyia nebulosa* and *Anopheles costalis*. The genus and species were determined by Mr. F. W. Edwards, of the British Museum, through the kindness of Mr. G. A. K. Marshall of the Imperial Bureau of Entomology. The specimens were identified and the list sent out by return of post.

Table V. shows the determinations.

Table VI. contains a tabulated statement, giving date, locality, receptacle and kind of larvæ found. It will be seen that *Stegomyia fasciata* was the only kind of larva found in 89 samples. It was associated with other larvæ in an additional ten bottles, four times with *C. fatigans* alone, three times with *C. fatigans* and *C. tigripes*, once with *C. decens*, *C. fatigans* and *Anopheles costalis* together, once with *C. fatigans* and *C. decens*, and once with *C. decens* alone. *Culex fatigans* was found alone in eight instances and along with *C. decens* on one occasion.

*Culex decens* occurred alone, twice.

The receptacles in which the larvæ were got, included tanks, barrels, pots, paint drums, bath-pans, kerosine tins and basins.

*Culex quasigelidus* was found breeding in a water-hole behind Railway Hill.

The rough map, attached shows the position of the blocks mentioned in Table VI. The letters denote the divisions of James Town and Ussher Town, and the figures represent the blocks.

## EXAMINATION OF FÆCES.

Seventy-six specimens have been reported upon.

Ankylostome ova were found, either alone or in association with other eggs, most commonly.

Table VII. gives the details of all the examinations, and Table VIII. shows the proportions of the different helminth ova found.

Fourteen of the samples came from Europeans. Ankylostome and tricocephalus ova were seen in two, oxyuris embryos in one, and *Entamœba histolytica* in another.

Twenty out of the 52 natives had ankylostome ova. Ascaris was next in order of frequency (11 cases) and tricocephalus was found in nine. The bilharzia ova in all three instances were lateral spined.

There are grounds for believing that the presence of ankylostomes and other helminths causes but little systemic disturbance in the bulk of adult natives. A certain proportion of the anæmia in native children, and also in Europeans, is very probably due to worm infections, and it is believed that some of the cases of fever, which are met with in the out-door department of the Hospital, are due to helminthiasis.

The absence of Trematodes other than bilharzia, and of *Tœnia onchospheres*, is noteworthy. The pigs, which are the favourite food of the lower classes of natives, are very frequently riddled with cysticerci.

## Examination of Urine.

Fifty samples were submitted, seven from Europeans and 43 from natives. Granular tube casts were found in two Europeans (both were cases of Yellow Fever) and pus in a third. Pus cells were found in fifteen specimens from natives, terminal—spined over bilharzia ova occurring in eleven of these. Tube casts were observed in other eleven cases.

Estimations of the amount of urea, were made in a number of cases of suspected Yellow Fever.

Table IX. gives the details of the examinations.

## Examination of Sputum.

Seventeen specimens were sent to the Laboratory. Tubercle bacilli were found in one European and in five natives.

A careful look-out was kept for plague bacilli, and also for helmith ova, and fungi.

Table X. shows results.

## Examination of Pus.

Twenty smears were examined. Gonococci were found in five, and Staphylococci in 14. Many scrapings from ulcers were sent up by Dr. O'Brien with a view to the detection of Leishmania, but none was seen.

The details were dealt with in Table XI.

## Blood-Sucking Flies.

No attempt was made to search for these. Such flies as ventured into the Laboratory, or were found on the cattle and horses brought for various purposes, were caught and preserved. A fair number of specimens were sent by various people *Glossina palpalis* and *G. Tachinoides* were both obtained in the Laboratory. A specimen of *G. fusca* was sent in from a bungalow close at hand.

*Tabanus biguttatus*, *T. tœniola* and *T. ditœniatus* were also caught on the windows.

*Stomoxys calcitrans*, *Lyperosia minuta*, and *Philœtomyia insignis* were got from the calves. *Phlebotomusf sp.?* *Bulicoides sp.?* were both somewhat rarely found, and no *Simulium* was seen.

The common mosquitoes, beyond those reared from larvæ, were *Mansoniodes uniformis*, *Mucidus mucidus*, *Reedomyia biannulata* and others.

Most of the identifications were kindly made at the London School of Tropical Medicine.

## Ticks.

These insects are very abundant on cattle, horses and domestic animals. *Amblyoma splendidum* was most commonly found on the cattle.

Numerous specimens of fleas and lice have been preserved.

## SLAUGHTER-HOUSE MATERIAL.

Blood-smears taken from the animals at the time of slaughtering have been examined at regular intervals throughout the year. The findings have been duly forwarded to the Senior Sanitary Officer, on the prescribed form, each month. They are now grouped for review. Parasites were comparatively rarely found. Trypanosomes were observed in nine out of 149 cows. The infected animal in each case came from the local source of supply, *i.e.* Addah and district. In the previous year no infections were found in this breed, trypanosomes having been observed only in the imported animals from the North. The inference is that the disease, having been brought in to Accra, has taken hold, and is spreading.

Only two sheep out of 87 showed trypanosomes, and none was found in 96 goats and 75 pigs. Other protozoa observed during the year were sarcocysts, in five pigs, one goat and one cow. This parasite is most frequently found in the gullet and neck muscles. Its situation probably accounts for its being found in the blood-smears, as they were taken from the cut throat. Spirilla of the *recurrentis* type were found in one sheep, and spirochætes were seen in two sheep and one goat. They were regarded as contaminations. Various bodies, apparently protozoal in nature were noted from time to time, but no definite conclusion has been reached as to their identity.

Many specimens from diseased tissues have been examined, such as enlarged glands, lung abscesses, congested spleens and other abnormal organs, but tubercle, anthrax and actinomycosis have never been observed.

A large collection of helminths has been made. Pigs and sheep, more especially the former, were frequently found heavily infested with cysticerci. Adult filariæ were not uncommonly obtained from the cattle in the connective tissue of the posterior abdominal wall. Various intestinal worms were got from all the animals. Adult cestodes were not common. The only member of the Trematoda found was *Gastrodiscus*, in cattle, and it was rare. All the specimens have been preserved and await identification at the London School of Tropical Medicine. *Porocephalus sp.* ? was not rarely found in the liver of cattle and sheep.

### POST-MORTEM EXAMINATION.

Twenty-four autopsies were performed on inmates of the Lunatic Asylum, and, under other circumstances, where the cause of death was doubtful or unknown in an inhabitant of the town. Enteric Fever was the cause of death in three, and perforation had occurred in one. The other diagnoses embraced Dysentery, Pneumonia, Yellow Fever, and Septicæmia. There was one very remarkable case, in which death had occurred a few days after the patient was first admitted to Hospital. There had been marked ascites with cardiac insufficiency. The liver was found greatly enlarged. It presented a strikingly nodular appearance, and was of a general greenish yellow colour. A full report will be furnished later.

A search was always made for parasitic worms. Ankylostomes were noted in 16 cases. In six they were the only worms found. They occurred along with ascaris in nine instances, and with tricocephalus in four of these. Oxyuris was found once, and *Tænia saginata* on two occasions.

*Porocephalus sp. ?* was found encysted in the mesentery in one case, a lunatic.

## MEDICO-LEGAL.

The following exhibits were forwarded from the Police Department :—

I.—One pair, trousers.
II.—Four cloths.
III.—Two cutlasses.
IV.—Two cloths.

Blood stains were detected in Nos. I and IV.

The stomach contents from a case of suspected poisoning at Kibbi were examined, but no information could be given as to the presence of an alkaloidal poison.

## WATER ANALYSIS.

These examinations are too few in number for reliable conclusions to be drawn from them, detailed reference is therefore omitted.

## GENERAL.

Other material examined included gland-juice, liver-smears, cerebro-spinal fluid, ascitic fluid, ovarian cystic fluid, vomited matter, and epidermal scales and hairs. A number of pieces of tissue were preserved, pending the arrival of a new microtome.

The resources of the Laboratory were frequently utilised for the examination of sick horses, dogs, cats and other animals.

Blood-smears from four sparrows and an owl showed numerous Halteridia, and films from several other birds, including finches and domestic fowls, and from lizards yielded negative results.

Eleven horses were examined during June and July, and seven were found to be suffering from trypanosomiasis. Eleven mules from the Accra Town Council were next tested and three were found to be infected. Most of these animals died, or where shot. The findings led to a visit of inspection from Mr. Beale, the Veterinary Officer. He made use of the Laboratory to conduct his investigations. A series of inoculations of various animals was begun during his stay. A goat, a dog, and several guinea-pigs were successfully infected with a strain of trypanosomes obtained from a horse. On Mr. Beale's departure the strain was kept up through a sheep, a cat, another dog, and guinea-pigs. The experiments had not finished by the end of the year. A rapid illness ending in death occurred in all the experimental animals, excepting in the rats where the strain died out.

Dr. J. J. Simpson, Travelling Entomologist for West Africa, of the Entomological Research Bureau, also made use of the Laboratory and its material when investigating the problem of the distribution of Tse-tse flies and other carriers in Accra.

Eight specimens of *Glossina palpalis,* were dissected, between May and October, They were all caught in the vicinity of the Laboratory, and were without exception, uninfected,

Six *Anopheles costalis* caught on Railway Hill were examined in June. Oocysts were found in the stomach of one.

One *Anopheles* (*Cellia*) *pharœnsis,* and one *Mansoniodes uniformis* yielded negative results on dissection.

Reports on the work done at Labadi, Komfrodua and Axim, have already been furnished.

The results have also been forwarded of the comparative tests made with locally manufactured Lymph, and the Vaccine Ointment supplied by the Society of Apothecaries. A series of demonstrations was given to the Native Sanitary Inspectors on the various tropical diseases. The nature of each was explained, and preparations of the parasites and of their carriers, illustrating the life-history and mode of spread, were shown.

It remains to note the failure to find Leishmania. Spirilla and Piroplasmata.

## SOURCES OF THE MATERIAL.

Most of the specimens examined came from the Hospital at Accra. The various Medical Officers in charge all contributed, Dr. J. M. O'Brien being responsible for three hundred and forty-nine.

Dr. Clough and Dr. C. V. Le Fanu made regular use of the Laboratory, for the European Hospital. Dr. Oakley sent material both from Accra and Salaga, Dr. Allan from Nsawam, Accra and Zouaregu, Dr. Hamilton from Weshiang, Dr. Lundie from Quittah, and Dr. Moffat from Nsawam. Dr. Ralph provided specimens from Winnebah, Dr. Graham and Dr. Harper from Seccondee, and Dr. Duff forwarded flies from the Kibbi district.

Capt. Maude, Mr. Cutfield, Mr. Studholme, Mr. Hutton and Mr. Huyt sent interesting material, as did also Capt. Collins, Mr. Woolley, Mr. Stiles, Mr. J. J. Phillips, Mr. Jackson and Capt. Chaloner. Dr. A. J. R. O'Brien and Dr. O'Hara May frequently contributed, and in addition, they arranged for the regular collection of mosquito larvæ by the Sanitary Inspectors.

A list of the insects collected by Dr. Hamilton at Weshiang is appended.

I have, &c.,
(Signed) A. CONNAL,
M. O.
*i/c Laboratory.*

THE HONOURABLE,
PRINCIPAL MEDICAL OFFICER,
VICTORIABORG.

## TABLE I.

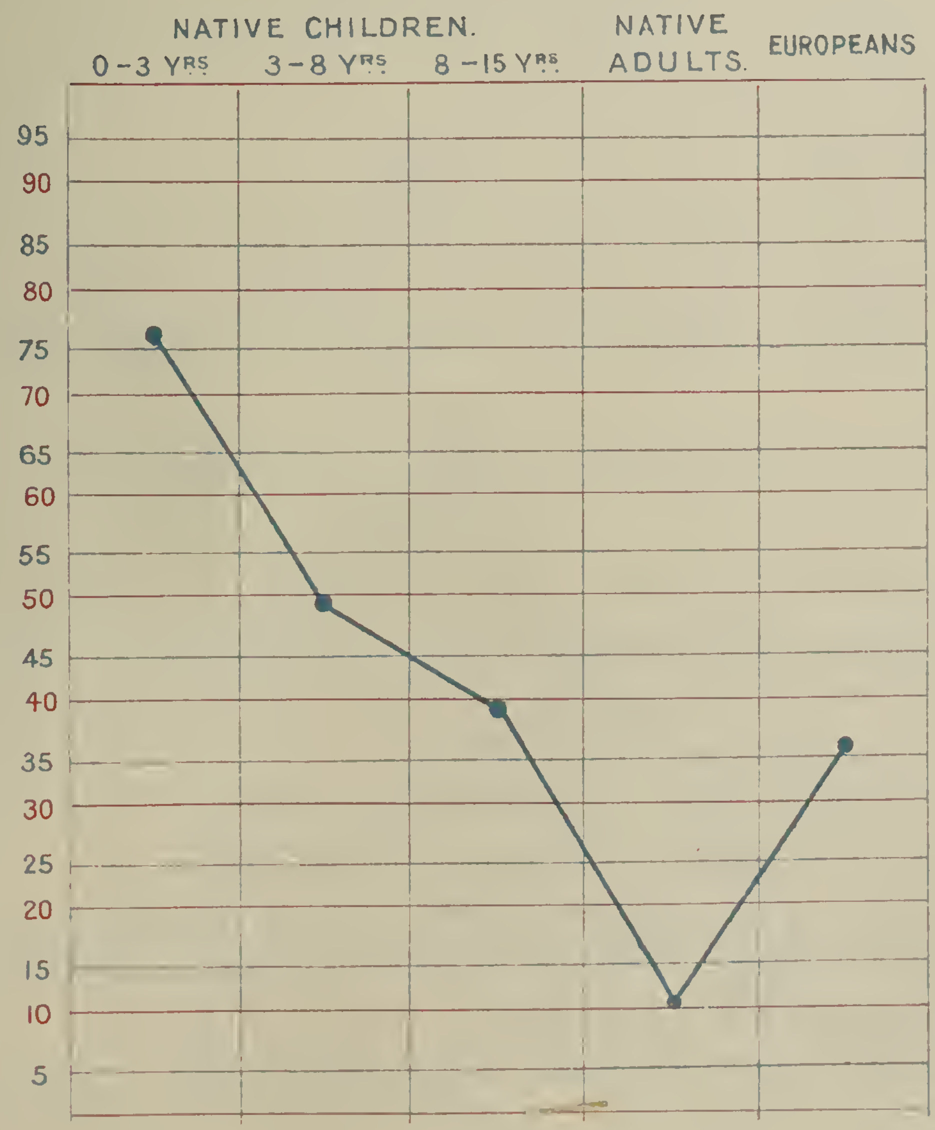
| Recipients. | Quantity sent from G. L. E. | Date dispatch. | Date of use. | Number of persons used for. | Failures. | Number of insertions made. | Number of insertions successful. | Percentage success. | | Remarks and Series. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Case. | Insertion. | |
| Kumasi ... | 1,000 | 5/7/12 | 18/7/12 | 250 | 44 | 1,000 | 533 | 84 | 53·3 | Series 69. |
| Dunkwa ... | 500 | 12/7/12 | Oct. '12<br>Nov. '12 | 160 | 136 | 480 | 39 | 15 | 8·1 | Series 71. |
| Seccondee ... | 1,000 | 2/8/12 | 24/8/12 | 300 | 72 | 911 | 452 | 86 | 49·6 | Series 72. |
| Asawam ... | 700 | 20/8/12 | 2/9/12 | 734 | 75 | 2,936 | 2,600 | 89·8 | 88·5 | Series 74. |
| Addah ... | 200 | 5/9/12 | 16/9/12 | 201 | 0 | 402 | 402 | 100 | 100 | Series 74. |
| Addah ... | 200 | 5/9/12 | 23/9/12 | 204 | 5 | 408 | 398 | 97·6 | 97·5 | Series 75. |
| Kibbi ... | 200 | 5/9/12 | 4/10/ 2 | 212 | 8 | 636 | 612 | 96·3 | 96·2 | Series 74. |
| Kibbi ... | 200 | 5/9/12 | 9/10/12 | 226 | 21 | 678 | 555 | 92·9 | 81·8 | Series 75. |
| Kibbi ... | 200 | 16/10/12 | 23/10/12 | 256 | 7 | 512 | 412 | 97·3 | 80·4 | Series 80. |
| Akuse ... | 800 | 16/10/12 | 23/10/12 | 30 | 0 | 120 | 120 | 100 | 100 | Series 80. |
| Bole ... ... | 800 | 1/11/12 | 1/12/12 | 10 | 1 | 40 | 20 | 90 | 50 | Series 81. |
| Lorha ... | 400 | 1/11/12 | 14/2/13 | 60 | 60 | 240 | 0 | 0 | 0 | Series 83. |

## TABLE II.

| | Malaria. | | | | Trypanosomes. | Embryos of Loa Loa. | Embryos of Filaria peritans. | Negative. | Totals. |
|---|---|---|---|---|---|---|---|---|---|
| | Quartan. | Benign Tertian. | Subtertian. | Pigmented mononuclears | | | | | |
| Europeans ... ... ... | 0 | 1 | 9 | 16 | 0 | 0 | 1 | 46 | 73 |
| Native Adults ... ... ... | 7 | 0 | 14 | 14 | 2 | 2 | 5 | 279 | 323 |
| Native children up to 3 years ... | 10 | 1 | 12 | 7 | 0 | 0 | 0 | 9 | 39 |
| Ditto 3–8 years | 6 | 0 | 5 | 4 | 0 | 0 | 0 | 15 | 30 |
| Ditto 8–15 years | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 5 |
| Totals ... ... ... ... | 23 | 2 | 40 | 43 | 2 | 2 | 6 | 352 | 470 |

Giving details of the Examination of Blood-Smears.

## TABLE III.



## TABLE IV.

| | Edge. | Middle. | Edge. | Middle. | Edge. | Middle. | Edge. | Middle. | Edge. | Middle. | Edge. | Middle. | Edge. | Middle. | Edge. | Middle. | Edge. | Middle. | Edge. | Middle. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polymorphs ... | 85 | 65 | 150 | 134 | 100 | 99 | 200 | 177 | 100 | 86 | 74 | 50 | 150 | 138 | 100 | 88 | 196 | 180 | 133 | 120 |
| Lymphocytes ... | 81 | 100 | 49 | 83 | 83 | 97 | 13 | 32 | 63 | 93 | 90 | 100 | 46 | 53 | 76 | 85 | 29 | 48 | 75 | 82 |
| Large Mononuclears | 78 | 32 | 33 | 26 | 52 | 46 | 36 | 31 | 37 | 32 | 44 | 25 | 22 | 7 | 57 | 37 | 21 | 19 | 23 | 21 |

## TABLE V.

Imperial Bureau of Entomology.
*Coll. No.* 133.

*List No.* 340 *(Af.).*
18/11/13.

### IDENTIFICATION OF MOSQUITOES BRED AT ACCRA, GOLD COAST, BY DR. A. CONNAL.

(Determinations by Mr. F. W. Edwards.)

*Culicidæ.*

| | |
|---|---|
| 1. | *Culex quasigelidus*, Theo. |
| 3, 6. | *C. decens*, Theo. |
| 4, 7, 9, 10, 12. | *C. fatigans*, Wied. |
| 8. | *C. trigripes*, Grp. |
| 2. | *Culiciomyia nebulosa*, Theo. |
| 5. | *Stegomyia fasciata*, F. |

Imperial Bureau of Entomology.
*Coll. No.* 132.

*List No.* 364. *(Af.).*
1st April, 1913.

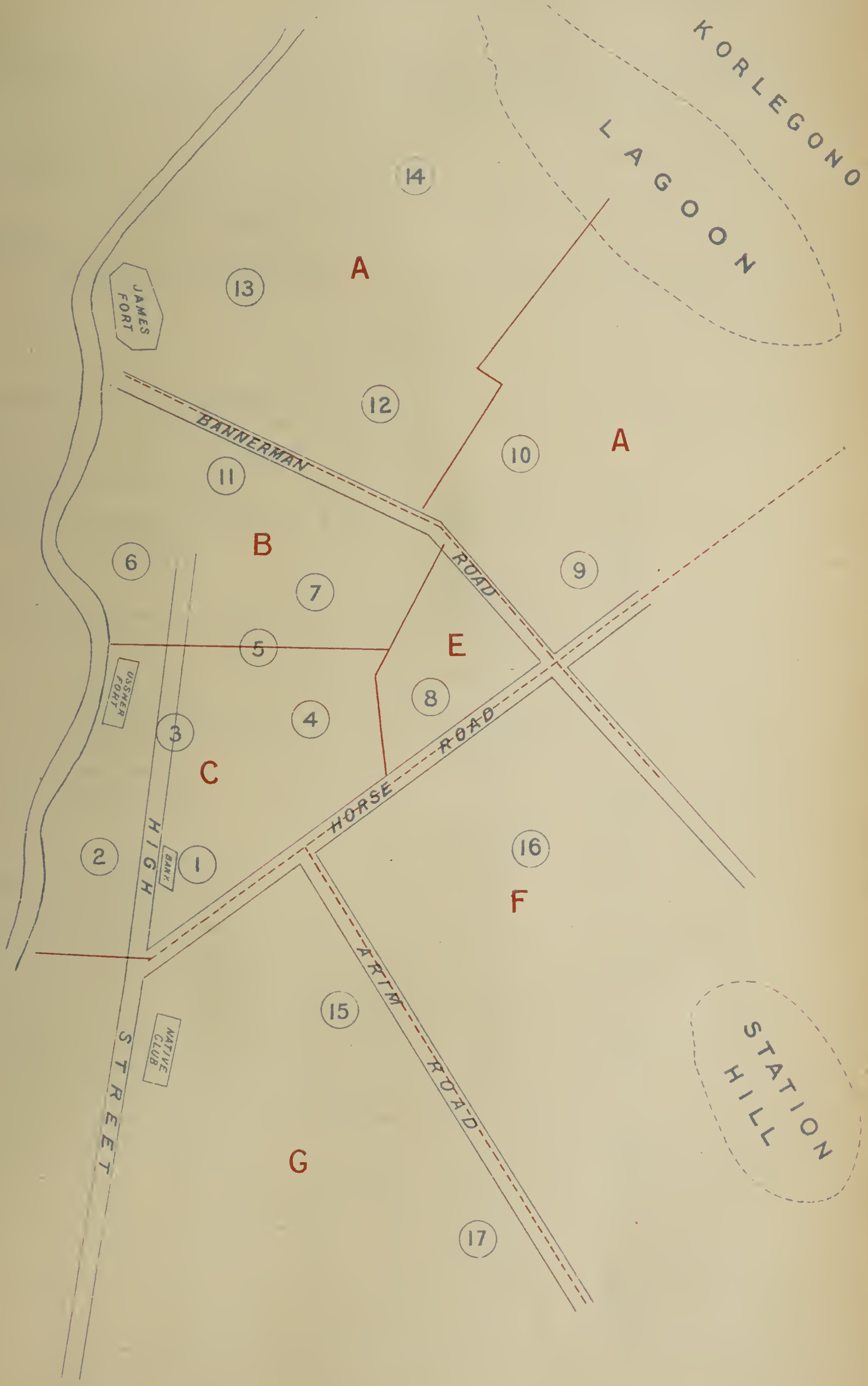
### IDENTIFICATIONS OF MOSQUITOES COLLECTED AT WESHIANG, ON THE RIVER DAINSU, 10 MILES N. W. OF ACCRA, GOLD COAST, BY DR. H. F. HAMILTON.

(Determined by Mr. F. W. Edwards.)

*Culicidæ.*

| | |
|---|---|
| X. | *Anopheles nili*, Theo. 4 0, 2–5.XII.12. |
| X. | *Stegomyia Lutecephal*, Newst. 1 0. 29.XI.12. |
| | *Ochlerotatus irritans*, Theo. 2 0, 29.XI.12 and 5 XII.12. |
| X. | *O. minutus*, Theo. 1 0, 30.XI.12. |
| X. | *O. furcifer*, Edw. 3 0, 27.XI.12.–1.XII.12. |
| X. | *Tænioides metallicus*, Theo. 1 0, 25.XI.12. |
| | *Mansonioides uniformis*, Theo. 1 0, 2.XII.12. |
| | *M. Africanus*, Theo. 6 0, 168 0, 25.XI.12–5.XII.12. |
| | *Culiciomyia nebulosa*, Theo. 4 0, 25–27.XI.12. |
| | *Culex thalassius*, Theo. 4 0, 25-30.XI.12. |

# TOWN MAP.


KORLEGONO
LAGOON
JAMES FORT
A
A
B
C
E
F
G
14
13
12
11
10
9
8
7
6
5
4
3
2
1
15
16
17
BANNERMAN ROAD
USSHER FORT
HIGH STREET
BANK
HORSE ROAD
ARTM ROAD
NATIVE CLUB
STATION HILL

Imperial Bureau of Entomology.
*Coll. No.* 132. *List No.* 365 (*Af.*).

# IDENTIFICATION OF BLOOD-SUCKING FLIES, COLLECTED IN THE GOLD COAST, BY DR. H. F. HAMILTON.

*Tabanidæ.*

*Tabanus tæniola*, p. de B. 1 0, Akuse, 6.VI.11.
*T. thoracinus*, p. de B. 1 0, Weshiang, 24.XI.12.

*Musidæ.*

*Glossina longipalpis*, Wied. 1 0. 7 0, Wushiang, 24–26.XI.12.

## TABLE VI.

| Date. | Kind of Larvæ found. | Block. | Receptacle. |
|---|---|---|---|
| 19/8/12 | *Stegomyia fasciata* ... ... ... | VIII. | Pot. |
| 28/8/12 | ,, ,, ... ... ... | Horse Road | Barrel. |
| 31/8/12 | *S. fasciata, Culex fatigans, C. decens*... | Korlegono | Pot. |
| 13/9/12 | *Stegomyia fasciata* ... ... ... | XI. | Pots. |
| ,, | ,, ,, ... ... ... | XVI. | Pan. |
| ,, | ,, ,, ... ... ... | III. xborg | Pot. |
| 14/9/12 | ,, ,, ... ... ... | I. xborg. | Pool. |
| ,, | *Culex decens* ... ... ... ... | XVI. | Pot. |
| 18/9/12 | *S. fasciata, C. fatigans, C. tigripes* ... | XVI | Pots. |
| ,, | *S. fasciata* ... ... ... ... | XVI. | ,, |
| ,, | ,, ,, ... ... ... ... | XI. | ,, |
| ,, | *Culex fatigans* ... ... ... ... | XI. | Pot. |
| 19/9/12 | *Stegomyia fasciata* ... ... ... | V. | ,, |
| ,, | *S. fasciata, C. fatigans* ... ... | Korlegono | ,, |
| ,, | *Culex decens* ... ... ... ... | ,, | ,, |
| ,, | *Stegomyia fasciata* ... ... ... | IX. | ,, |
| ,, | *Culex fatigans* ... ... ... ... | V. | Tin. |
| 23/9/12 | *Stegomyia fasciata* ... ... ... | XVI. | Pot and Barrel. |
| ,, | ,, ,, ... ... ... | Hausa Town | Pot. |
| ,, | ,, ,, ... ... ... | Horse Road | Drum. |
| ,, | *S. fasciata, C. fatigans* ... ... | XVI. | Pot. |
| 24/8/12 | *Stegomyia fasciata* ... ... ... | XVI. | ,, |
| ,, | *Culex fatigans* ... ... ... ... | VII. | Barrel. |
| 26/9/12 | *Stegomyia fasciata* ... ... ... | XVI. | ,, |
| 27/9/12 | *Culex fatigans* ... ... ... ... | XVI. | Drum and Barrel. |
| ,, | ,, ,, ... ... ... ... | IX. | Barrel. |
| 1/10/12 | *Stegomyia fasciata* ... ... ... | XV. | Pot. |
| ,, | ,, ,, ... ... ... | Hausa Town | ,, |
| 2/10/12 | ,, ,, ... ... ... | XIII. | ,, |
| 4/10/12 | ,, ,, ... ... ... | XII. | Barrel. |
| ,, | *S. fasciata, C. fatigans* ... ... | Korlegono | Pot. |
| 7/10/12 | *Stegomyia fasciata* ... ... ... | XVI. | Pots. |
| 8/10/12 | *S. fasciata, C. decens, C. fatigans, Anopheles costalis* ... ... ... | Agbogbloshie | Pot. |
| 9/10/12 | *Stegomyia fasciata* ... ... ... | I. | Barrel. |
| ,, | ,, ,, ... ... ... | XIV. | Pot. |
| ,, | ,, ,, ... ... ... | XV. | Pots. |
| 10/10/12 | ,, ,, ... ... ... | III. xborg | ,, |
| ,, | ,, ,, ... ... ... | XIV. | Pot. |
| ,, | ,, ,, ... ... ... | XV. | ,, |
| ,, | ,, ,, ... ... ... | Reponsville | ,, |
| 14/10/12 | ,, ,, ... ... ... | I. xborg | Pot and Drum. |
| ,, | ,, ,, ... ... ... | XI. | Pot. |
| ,, | ,, ,, ... ... ... | XII. | Barrel. |
| ,, | ,, ,, ... ... ... | XV. | Pot. |

## TABLE VI.—*continued.*

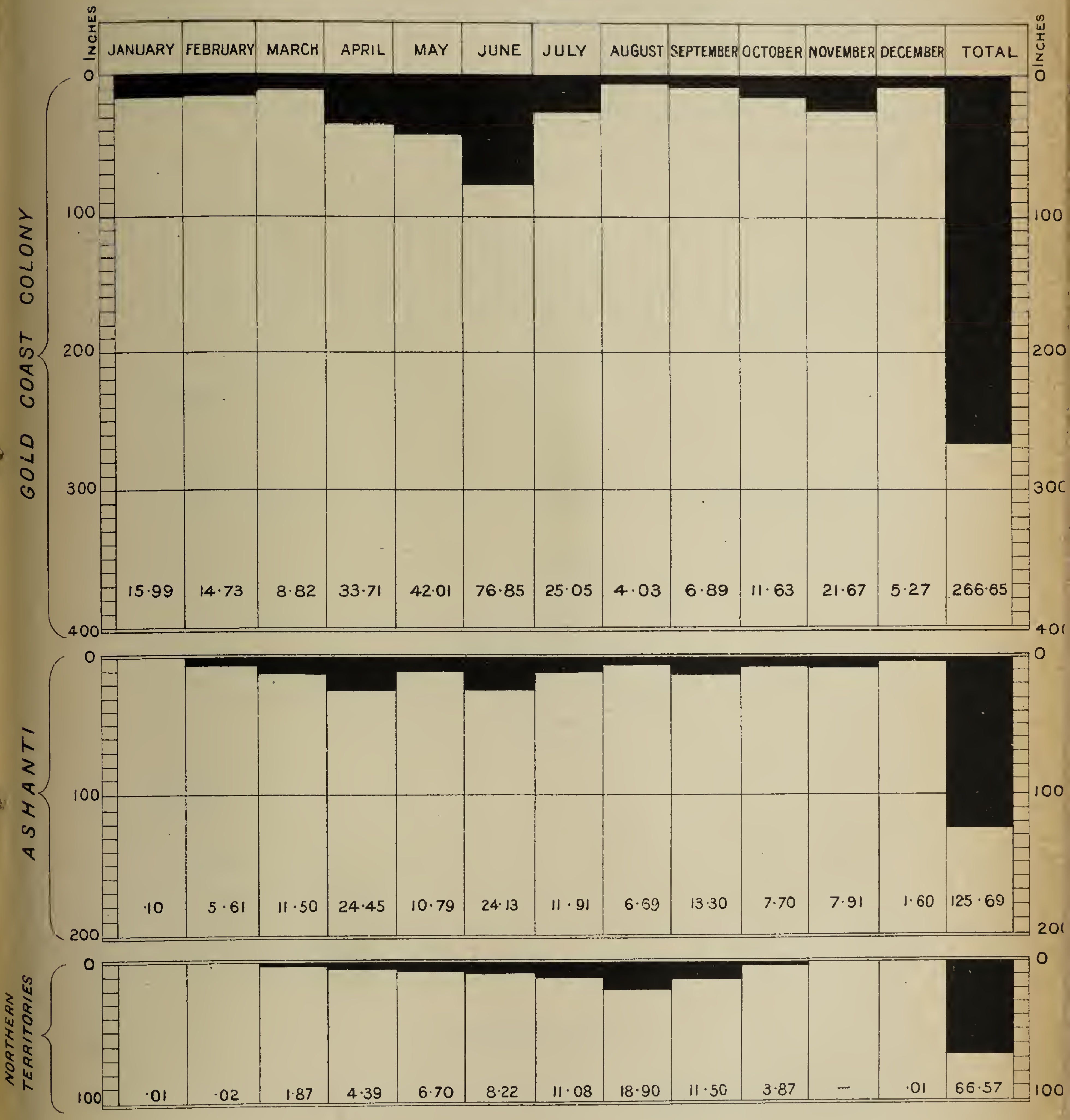
| Date. | Kind of Larvæ found. | Block. | Receptacle. |
|---|---|---|---|
| 15/10/12 | *Stegomyia fasciata* | VI. xborg | Pot. |
| " | " " | XV. | Barrel. |
| " | *Culex fatigans* | XVI. | Basin. |
| 16/10/12 | *Stegomyia fasciata* | Korlegono | Pot. |
| 18/10/10 | " " | III. | Basin. |
| " | " " | XV. | Pot. |
| 19/10/12 | " " | III. xborg | " |
| 21/10/12 | *Culex fatigans* | Korlegono | " |
| 22/10/12 | " " | XVI. | Kerosine tin. |
| 23/10/12 | *Stegomyia fasciata* | V. xborg | Pot. |
| 24/10/12 | " " | V. | " |
| 28/10/12 | " " | IV. | Pots. |
| 29/10/12 | " " | Hausa Town | Pot. |
| 4/11/12 | " " | XII. | " |
| " | " " | XVI. | Tank. |
| 5/11/12 | " " | XI. | Pots. |
| 6/11/12 | " " | III. xborg | Pot. |
| 7/11/12 | " " | XVI. xborg | Barrels and Drum. |
| 8/11/12 | " " | XVI. | Pot and Drum. |
| 11/11/12 | " " | III. xborg | Pots. |
| " | " " | XV. | " |
| 12/11/12 | " " | XVI. | Pot. |
| 13/11/12 | " " | III. | " |
| " | " " | VI. | " |
| " | " " | VII. | " |
| " | " " | XIV. | " |
| " | " " | XVII. | Tanks and Pots. |
| " | " " | Korlegono | Pot. |
| 14/11/12 | " " | XVII. | " |
| " | " " | XXV. | " |
| " | " " | XXVI. | " |
| " | " " | XXVII. | " |
| 26/11/12 | " " | XVI. | " |
| 27/11/12 | " " | V. xborg | Barrel, Drum and Pot. |
| 4/12/12 | *Culex decens, C. fatigans* | XVII. | Barrels and Pots. |
| 13/12/12 | *Stegomyia fasciata* | XVI. | Pots. |
| 16/12/12 | " " | XVII. | Pot. |
| 17/12/12 | " " | XVI. | " |

## TABLE VII.

| — | Ankylostome Ova. | Ankylostome Tricocephalus Ova. | Ascaris Ova. | Ankylostome Ascaris Ova. | Bilharzia Ova. | Oxyuris Ova. | Ankylostome Tricocephalus Ascaris Ova. | Ascaris Tricocephalus Ova. | Bilharzia Ankylostome Ova. | Entamœba histolytica. | Bacillary Dysentery. | Lamblia intestinalis. | Balantidium coli. | Negative. | TOTALS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Europeans ... ... | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 8 | 14 |
| Natives ... ... | 10 | 4 | 5 | 3 | 2 | 1 | 2 | 1 | 1 | 8 | 3 | 1 | 1 | 20 | 62 |
| | 10 | 6 | 5 | 3 | 2 | 2 | 2 | 1 | 1 | 9 | 5 | 1 | 1 | 28 | 76 |

# 1912.

# RAINFALL ON THE GOLD COAST, ASHANTI & THE NORTHERN TERRITORIES.



**NOTE**:- To arrive at an approximate average for the Colony, Ashanti and the Northern Territories, the totals given for each, should be divided by 8, 3 & 2 respectively. See appendix I.

WATERLOW & SONS LIMITED, LONDON WALL, LONDON

LIBRARY

## TABLE VIII.

| Ankylostomes. | Ascaris. | Tricocephalus. | Bilharzia. | Oxyuris. |
|---|---|---|---|---|
| 22 | 11 | 9 | 3 | 2 |

## TABLE IX.

| — | Tube Casts. | Pus. | Bilharzia Ova. | Negative. | TOTALS. |
|---|---|---|---|---|---|
| Europeans ... ... | 2 | 1 | — | 4 | 7 |
| Natives ... ... ... | 9 | 15 | 11 | 8 | 43 |
| TOTALS ... ... | 11 | 16 | 11 | 12 | 50 |

## TABLE X.

| — | Tubercle Bacilli. | Pneumococci. | Negative. | TOTALS. |
|---|---|---|---|---|
| Europeans ... ... | 1 | — | 2 | 3 |
| Natives ... ... | 5 | 1 | 8 | 14 |
| TOTALS ... | 6 | 1 | 10 | 17 |

## TABLE XI.

| — | Gonococci. | Pneumococci. | Staphylococci. Streptococci. | TOTALS. |
|---|---|---|---|---|
| Europeans ... ... | 1 | — | 2 | 3 |
| Natives ... ... | 4 | 1 | 12 | 17 |
| TOTALS ... | 5 | 1 | 14 | 20 |

# APPENDIX I.

## ACCRA.

### Meteorological Return for the Year 1912.

| Month. | Temperature. | | | | | | Rainfall. | | Wind. | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 138·87 | 71·70 | 86·61 | 72·77 | 13·83 | 79·69 | ·72 | 77·00 | S.W. | 61·50 | |
| February ... | 142·31 | 71·72 | 87·17 | 71·75 | 15·41 | 79·46 | ·20 | 80·62 | ,, | 65·65 | |
| March ... | 145·16 | 79·35 | 89·22 | 72·51 | 16·70 | 80·86 | ·12 | 75·32 | ,, | 64·79 | |
| April ... ... | 145·80 | 80·83 | 90·70 | 79·43 | 11·26 | 85·06 | 6·03 | 81·30 | ,, | 45·49 | |
| May ... ... | 146·41 | 76·83 | 85·48 | 70·00 | 15·48 | 77·74 | 3·00 | 77·93 | ,, | 60·17 | |
| June ... ... | 146·40 | 74·10 | 85·63 | 68·00 | 17·63 | 76·81 | 3·63 | 82·80 | ,, | 49·09 | |
| July ... ... | 140·70 | 72·45 | 83·54 | 71·83 | 11·70 | 77·68 | 3·52 | 76·64 | ,, | 58·76 | |
| August ... | 142·25 | 71·70 | 83·41 | 72·87 | 10·54 | 78·14 | ... | 75·77 | ,, | 59·47 | |
| September ... | 142·86 | 71·26 | 82·50 | 72·00 | 10·50 | 77·25 | ·80 | 79·00 | ,, | 70·57 | |
| October ... | 146·96 | 72·35 | 85·12 | 73·96 | 11·16 | 79·54 | ·45 | 81·35 | ,, | 59·70 | |
| November ... | 145·36 | 74·46 | 83·16 | 72·96 | 10·20 | 78·06 | 2·06 | 80·93 | ,, | 59·43 | |
| December ... | 141·51 | 73·16 | 84·55 | 73·19 | 11·35 | 78·87 | ... | 80·38 | ... | 53·50 | |
| Totals ... | 1724·59 | 889·91 | 1027·09 | 871·27 | 155·76 | 949·16 | 20·53 | 949·04 | S W. | 708·12 | |
| Means ... | 143·71 | 74·15 | 85·59 | 72·60 | 12·98 | 79·09 | ... | 79·08 | ... | 59·01 | |

## ABURI.

### Meteorological Return for the Year 1912.

| Month. | Temperature. | | | | | | Rainfall. | | Wind. | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 135·16 | 66·58 | 84·61 | 65·90 | 18·70 | 75·25 | 2·22 | 84·70 | N.W. | ... | |
| February ... | 145·82 | 65·62 | 86·27 | 63·93 | 22·34 | 75·10 | 3·22 | 81·10 | ,, | ... | |
| March ... | 149·35 | 64·42 | 87·96 | 66·64 | 21·32 | 77·30 | 1·24 | 80·93 | ,, | ... | |
| April ... ... | 148·06 | 70·37 | 87·53 | 66·86 | 20·66 | 77·19 | 6·74 | 82·20 | ,, | ... | |
| May ... ... | 146·45 | 66·96 | 85·96 | 65·54 | 20·41 | 75·75 | 4·07 | 82·32 | ,, | ... | |
| June ... ... | 145·60 | 68·00 | 86·56 | 66·36 | 20·20 | 76·46 | 7·78 | 87·50 | S.W. | ... | |
| July ... ... | 135·09 | 68·93 | 79·12 | 66·00 | 13·12 | 72·56 | 2·38 | 88·16 | ,, | ... | |
| August ... | 141·93 | 65·80 | 82·16 | 65·45 | 16·70 | 73·80 | 1·08 | 81·77 | ,, | ... | |
| September ... | 145·80 | 66·63 | 78·10 | 68·50 | 9·66 | 78·30 | 1·31 | 87·10 | ,, | ... | |
| October ... | 149·35 | 67·50 | 83·23 | 65·19 | 18·04 | 74·21 | ·51 | 85·14 | ,, | ... | |
| November ... | 146·18 | 69·36 | 87·08 | 65·96 | 18·83 | 76·52 | 1·73 | 88·20 | ,, | ... | |
| December ... | 137·61 | 68·45 | 84·83 | 72·58 | 14·51 | 78·70 | ·12 | 85·77 | ,, | ... | |
| Totals ... | 1726·40 | 808·62 | 1013·41 | 798·91 | 214·49 | 911·14 | 32·40 | 1014·89 | S.W. | ... | |
| Means ... | 143·86 | 67·38 | 84·45 | 66·57 | 17·87 | 75·92 | ... | 84·57 | ... | ... | |

## CAPE COAST.

### METEOROLOGICAL RETURN FOR THE YEAR 1912.

| MONTH. | TEMPERATURE. | | | | | | RAINFALL. | | WIND. | | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 93·67 | 53·70 | 84·09 | 77·41 | 6·67 | 80·75 | 2·06 | 84·09 | ... | ... | |
| February ... | 104·51 | 56 37 | 85·65 | 78·93 | 6·72 | 82·29 | ·30 | 81·75 | ... | ... | |
| March ... | 98·70 | 59·35 | 91·22 | 71·35 | 19·87 | 81·28 | ·30 | 84·61 | ... | ... | |
| April ... ... | 99·56 | 72·58 | 91·40 | 71·53 | 19·86 | 81·46 | 1·88 | 82·36 | ... | ... | |
| May ... ... | 163·46 | 70·61 | 88·77 | 70·87 | 17·90 | 79·82 | 4·44 | 80·87 | ... | ... | |
| June ... ... | 134·70 | 74·10 | 84·80 | 71·93 | 12·86 | 78·36 | 8·34 | 87·36 | ... | ... | |
| July ... ... | 137·45 | 69·32 | 82·54 | 70·77 | 11·77 | 76·65 | 1·94 | 85·48 | ... | ... | |
| August .. | 140·38 | 65·19 | 83·03 | 68·96 | 14·06 | 75·99 | ·65 | 84·45 | ... | ... | |
| September ... | 140·16 | 64·66 | 83·23 | 69·66 | 13·56 | 75·94 | ·06 | 87·33 | ... | ... | |
| October ... | 148·16 | 55·87 | 85·70 | 71·67 | 14·03 | 78·63 | ·01 | 71·61 | ... | ... | |
| November ... | 142·50 | 55·30 | 86·10 | 73·10 | 13·00 | 79·60 | ·11 | 79·56 | ... | ... | |
| December ... | 137·64 | 64·12 | 87·06 | 73·70 | 13·35 | 80·38 | ·01 | 81·64 | ... | ... | |
| Totals ... | 1540·89 | 761·17 | 1033·59 | 869·88 | 163·65 | 951·15 | 20·10 | 991·11 | ... | ... | |
| Means ... | 128·40 | 63·43 | 86·13 | 72·49 | 13·63 | 79·26 | ... | 82·59 | ... | ... | |

## SECCONDEE.

### METEOROLOGICAL RETURN FOR THE YEAR 1912.

| MONTH. | TEMPERATURE. | | | | | | RAINFALL. | | WIND. | | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 133·70 | 66·93 | 87·58 | 70·48 | 17·09 | 79·03 | 4·20 | 57·25 | ... | ... | |
| February ... | 146·96 | 69·65 | 91·62 | 71·79 | 19·82 | 81·70 | 1·42 | 56·51 | ... | ... | |
| March ... | 145·54 | 73·22 | 92·35 | 72·70 | 19·64 | 82·52 | ·61 | 54·67 | ... | ... | |
| April ... ... | 147·90 | 68·73 | 92·76 | 72·76 | 20·00 | 82·76 | 1·56 | 54·33 | ... | ... | |
| May ... ... | 147·29 | 67·45 | 91·77 | 72·25 | 19·51 | 82·01 | 4·40 | 56·32 | ... | ... | |
| June ... ... | 126·30 | 70·46 | 85·20 | 70·56 | 14·63 | 77·88 | 15·42 | 63·26 | ... | ... | |
| July ... ... | 113·09 | 70·06 | 81·45 | 67·64 | 13·80 | 74·54 | 2·79 | 63·70 | ... | ... | |
| August ... | 109·03 | 69·93 | 82·67 | 66·25 | 16·41 | 74·46 | ·17 | 60·70 | ... | ... | |
| September ... | 115·10 | 70·36 | 83·03 | 69·70 | 13·33 | 76·36 | 1·06 | 63·13 | ... | ... | |
| October ... | 121·09 | 66·51 | 83·19 | 73·06 | 14·32 | 78·12 | ·03 | 54·41 | ... | ... | |
| November ... | 124·50 | 67·10 | 87·10 | 74·06 | 13·70 | 80·53 | 1·50 | 56·46 | ... | ... | |
| December ... | ... | 65·19 | 89·96 | 74·83 | 15·12 | 82·39 | ·16 | 57·93 | ... | ... | |
| Totals ... | 1430·50 | 825·59 | 1048·68 | 856·08 | 197·37 | 952·30 | 33·32 | 698·67 | ... | ... | |
| Means ... | 130·04 | 68·79 | 87·39 | 71·34 | 16·44 | 79·35 | ... | 58·22 | ... | ... | |

# AXIM.

## METEOROLOGICAL RETURN FOR THE YEAR 1912.

| MONTH. | TEMPERATURE. | | | | | | RAINFALL. | | WIND. | | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 132·77 | 60·83 | 84·70 | 64·00 | 20·70 | 74·35 | 2·89 | 91·54 | ... | ... | |
| February .. | 133·75 | 62·93 | 86·27 | 68·13 | 18·13 | 43·13 | 5·52 | 88·58 | ... | ... | |
| March ... | 133·25 | 58·51 | 88·70 | 77·12 | 11·58 | 82·91 | 2·28 | 87·09 | ... | ... | |
| April ... ... | 133·03 | 56·13 | 89·53 | 77·93 | 11·60 | 84·73 | 3·74 | 84·96 | ... | ... | |
| May ... ... | 132·22 | 54·54 | 88·03 | 74·70 | 13·32 | 81·36 | 6·71 | 85·58 | ... | ... | |
| June ... ... | 129·66 | 53·90 | 82·83 | 72·10 | 10·73 | 77·46 | 21·04 | 91·56 | ... | ... | |
| July ... ... | 128·87 | 53·32 | 81·00 | 72·38 | 8·61 | 76·69 | 5·32 | 92·09 | ... | ... | |
| August ... | 129·67 | 54·00 | 82·51 | 72·06 | 10·45 | 77·28 | 1·08 | 91·87 | ... | ... | |
| September ... | 129·01 | 52·66 | 81·08 | 72·03 | 9·76 | 76·91 | 1·47 | 93·05 | ... | ... | |
| October ... | 131·12 | 55·51 | 83·74 | 71·19 | 12·54 | 77·46 | 2·05 | 93·00 | ... | ... | |
| November ... | 130·66 | 72·50 | 83·46 | 71·76 | 8·36 | 77·61 | 7·66 | 93·93 | ... | ... | |
| December ... | 132·13 | 74·35 | 84·35 | 75·54 | 8·80 | 79·44 | 3·83 | 92·58 | ... | ... | |
| Totals ... | 1576·14 | 709·18 | 1016·20 | 868·94 | 144·58 | 909·33 | 63·59 | 1085·83 | ... | ... | |
| Means ... | 131·34 | 59·09 | 84·68 | 72·41 | 12·04 | 75·77 | ... | 90·48 | ... | ... | |

# QUITTAH.

## METEOROLOGICAL RETURN FOR THE YEAR 1912.

| MONTH. | TEMPERATURE. | | | | | | RAINFALL. | | WIND. | | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 135·16 | 66·58 | 84·61 | 65·90 | 18·70 | 75·25 | 2·22 | 84·70 | N.W. | ... | |
| February ... | 141·65 | 74·79 | 90·00 | 78·65 | 11·34 | 84·32 | ·71 | 79·93 | ... | ... | |
| March ... | 144·48 | 74·83 | 90·96 | 78·54 | 12·41 | 84·70 | ·20 | 73·67 | ... | ... | |
| April ... ... | 145·06 | 75·63 | 91·33 | 77·10 | 14·23 | 84·21 | 2·57 | 74·63 | ... | ... | |
| May ... ... | 143·48 | 76·38 | 89·09 | 76·48 | 12·61 | 82·78 | 2·02 | 77·96 | ... | ... | |
| June ... ... | 140·90 | 73·53 | 85·26 | 74·30 | 10·96 | 79·78 | 7·19 | 81·73 | ... | ... | |
| July ... ... | 136·00 | 72·03 | 82·70 | 72·70 | 10·00 | 77·70 | 2·20 | 78·35 | ... | ... | |
| August ... | 139·35 | 69·00 | 83·51 | 71·32 | 12·19 | 77·41 | ... | 72·61 | ... | ... | |
| September ... | 139·73 | 72·06 | 83·13 | 72·60 | 10·86 | 77·86 | ·09 | 75·16 | ... | ... | |
| October ... | 146·32 | 7·06 | 90·29 | 73·67 | 13·35 | 81·98 | ·27 | 74·74 | ... | ... | |
| November ... | 114·06 | ... | 87·26 | 75·16 | 13·90 | 81·21 | ·02 | 72·96 | ... | ... | |
| December ... | 136·41 | ... | 87·83 | 76·77 | 12·51 | 82·30 | ... | 74·25 | ... | ... | |
| Totals ... | 1662·60 | 661·89 | 1045·97 | 893·19 | 153·06 | 969·50 | 17·49 | 920·69 | ... | ... | |
| Means ... | 138·55 | 66·18 | 87·16 | 74·43 | 12·75 | 80·79 | ... | 76·72 | ... | ... | |

## ADDAH.

### METEOROLOGICAL RETURN FOR THE YEAR 1912.

| MONTH. | TEMPERATURE. | | | | | | RAINFALL. | | WIND. | | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 144·41 | ... | 87·35 | 77·51 | 9·83 | 82·43 | ·28 | 76·58 | ... | ... | |
| February ... | 152·58 | ... | 87·48 | 79·55 | 7·93 | 83·51 | ·06 | 79·55 | ... | ... | |
| March ... | 153·54 | 80·08 | 87·00 | 79·74 | 7·25 | 83·37 | ... | 81·80 | ... | ... | |
| April ... ... | 149·53 | 76·10 | 87·83 | 79·56 | 8·26 | 83·69 | 3·32 | 78·96 | ... | ... | |
| May ... ... | 151·51 | 74·93 | 86·22 | 78·25 | 7·96 | 82·23 | 11·62 | 80·77 | ... | ... | |
| June ... ... | 144·20 | 72·93 | 82·06 | 75·60 | 6·46 | 78·83 | 4·78 | 83·33 | ... | ... | |
| July ... ... | 146·12 | 72·16 | 79·41 | 73·41 | 6·00 | 76·41 | 2·60 | 87.25 | ... | ... | |
| August ... | 145·90 | 67·64 | 77·67 | 70·58 | 7·09 | 74·12 | ... | 88·19 | ... | ... | |
| September ... | 146·13 | 68·02 | 78·07 | 72·43 | 6·26 | 75·56 | ·20 | 87·83 | ... | ... | |
| October ... | 150·77 | 69·06 | 82·93 | 72·19 | 7·48 | 77·51 | ·74 | 83·16 | ... | ... | |
| November ... | 149·32 | 75·35 | 86·01 | 76·96 | 9·76 | 81·48 | 3·56 | 81·03 | ... | ... | |
| December ... | 143·79 | 77·77 | 86·62 | 77·03 | 9·61 | 81·82 | ... | 81·22 | ... | ... | |
| Totals ... | 1777·80 | 734·04 | 1008·65 | 912·81 | 93·89 | 960·96 | 27·16 | 989·67 | ... | ... | |
| Means ... | 148·15 | 73·40 | 84·05 | 76·06 | 7·82 | 80·08 | ... | 82·47 | ... | ... | |

## TARQUAH.

### METEOROLOGICAL RETURN FOR THE YEAR 1912.

| MONTH. | TEMPERATURE. | | | | | | RAINFALL. | | WIND. | | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | ... | 70·32 | 91·38 | 71·54 | 19·83 | 81·46 | 1·30 | 79·54 | ... | ... | |
| February ... | ... | 70·62 | 93·00 | 71·72 | 21·27 | 82·36 | 3·30 | 79·24 | ... | ... | |
| March ... | ... | 71·74 | 95·25 | 73·12 | 22·12 | 84·18 | 4·07 | 78·51 | ... | ... | |
| April ... ... | ... | 71·96 | 93·89 | 73·33 | 20·56 | 83·61 | 7·87 | 78·76 | ... | ... | |
| May ... ... | ... | 71·61 | 98·96 | 73·19 | 19·77 | 86·07 | 5·75 | 77·61 | ... | ... | |
| June ... ... | ... | 71·20 | 87·23 | 72·30 | 14·93 | 79·76 | 8·77 | 81·06 | ... | ... | |
| July ... ... | ... | 70·80 | 86·12 | 71·93 | 14·19 | 79·02 | 4·30 | 79·67 | ... | ... | |
| August ... | ... | 68·45 | 87·87 | 69·96 | 17·90 | 78·91 | 1·05 | 75·41 | ... | ... | |
| September ... | ... | 69·80 | 89·33 | 71·23 | 18·10 | 80·28 | 1·90 | 78·67 | ... | ... | |
| October ... | ... | 70·12 | 92·58 | 71·61 | 20·96 | 82·09 | 7·57 | 78·12 | ... | ... | |
| November ... | 158·76 | 69·53 | 92·50 | 70·76 | 21·73 | 81·63 | 5·03 | 79·46 | ... | ... | |
| December ... | 145·19 | 69·83 | 92·69 | 70·80 | 21·87 | 81·74 | 1·15 | 78·77 | ... | ... | |
| Totals ... | 303·95 | 845·98 | 1100·80 | 861·49 | 232·23 | 981·11 | 52·06 | 944·82 | ... | ... | |
| Means ... | 151·97 | 70·49 | 91·73 | 71·79 | 19·43 | 81·75 | ... | 78·73 | ... | ... | |

## COOMASSIE.

### Meteorological Return for the Year 1912.

| Month. | Temperature. | | | | | | Rainfall. | | Wind. | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 146·80 | 64·12 | 85·03 | 71·19 | 13·83 | 78·11 | ... | 88·51 | ... | ... | |
| February ... | 127·41 | 61·48 | 88·93 | 71·44 | 17·48 | 80·18 | 2·62 | 87·96 | ... | ... | |
| March ... | ... | 64·83 | 88·09 | 71·19 | 16·90 | 79·64 | 5·60 | 88·00 | ... | ... | |
| April ... .. | ... | 65·03 | 86·63 | 70·46 | 16·16 | 78·54 | 7·74 | 87·93 | ... | ... | |
| May ... ... | ... | 63·70 | 87·16 | 71·25 | 15·90 | 79·20 | 3·29 | 86·93 | ... | ... | |
| June ... ... | ... | 61·00 | 88·16 | 70·50 | 17·66 | 79·33 | 11·85 | 84 63 | ... | ... | |
| July ... ... | ... | ... | 85·74 | 70·48 | 15·25 | 78·11 | 3·98 | 87·54 | ... | ... | |
| August ... | ... | ... | 89·25 | 69·93 | 19·32 | 79 59 | 1·19 | 81·64 | ... | .. | |
| September ... | ... | ... | 86·13 | 71·96 | 13·50 | 79·04 | 3·79 | 76·26 | ... | ... | |
| October ... | ... | 25·09 | 84·61 | 69·48 | 15·12 | 77·04 | 4·49 | 77·35 | ... | ... | |
| November ... | ... | 75·50 | 85·80 | 70·46 | 15·33 | 78·13 | 5·39 | 89·00 | ... | ... | |
| December ... | ... | 76·12 | 84·77 | 69·48 | 15·29 | 77·12 | ·60 | 78·08 | ... | ... | |
| Totals ... | 274·21 | 556·87 | 1040·30 | 847·82 | 191·74 | 944·03 | 50·54 | 1013·83 | ... | ... | |
| Means ... | 137·10 | 61·87 | 86·69 | 70·65 | 15·97 | 78·66 | ... | 84·48 | ... | ... | |

## KINTAMPO.

### Meteorological Return for the Year 1912.

| Month. | Temperature. | | | | | | Rainfall. | | Wind. | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| February ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| March ... | 145·93 | ... | 95·77 | 70·58 | 25·19 | 83·17 | 2·74 | 65·88 | ... | ... | |
| April ... ... | 148·16 | ... | 94·26 | 71·46 | 22·80 | 82·86 | 6·66 | 68·11 | ... | ... | |
| May ... ... | 148·32 | ... | 91·74 | 72 38 | 19·35 | 82·06 | 4 55 | 69.38 | ... | ... | |
| June ... ... | 175·63 | ... | 87·40 | 70·16 | 17·23 | 78·78 | 7·96 | 81·85 | ... | ... | |
| July ... ... | 139·38 | ... | 81·83 | 66·74 | 15·09 | 74·28 | 5·06 | 83·03 | ... | ... | |
| August ... | 138·70 | ... | 86·54 | 68·80 | 17·74 | 77·67 | 3·72 | 97·46 | ... | ... | |
| September ... | 144·33 | ... | 86·60 | 69·66 | 17·06 | 78·13 | 5·74 | 81·56 | ... | ... | |
| October ... | 145·25 | ... | 90·51 | 69·52 | 21·32 | 51·60 | ... | 72·27 | ... | ... | |
| November ... | 137 00 | ... | 93·76 | 68·93 | 24·53 | 81·34 | 1·00 | 62·20 | ... | ... | |
| December ... | 132·06 | ... | 93·25 | 67·41 | 25·83 | 80·33 | 0·82 | 59 19 | ... | ... | |
| Totals ... | 1454·76 | ... | 901·66 | 695·64 | 206·14 | 770·22 | 38·25 | 740·93 | ... | ... | |
| Means ... | 145·47 | ... | 90·16 | 69·56 | 20·61 | 77·02 | ... | 74·09 | ... | ... | |

# SUNYANI.

## Meteorological Return for the Year 1912.

| Month. | Temperature. | | | | | | Rainfall. | | Wind. | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 130·61 | 52·41 | 91·09 | 64·41 | 26·67 | 77·75 | ·10 | 83·25 | ... | ... | |
| February ... | 139·34 | 59·41 | 93·72 | 67·27 | 26·44 | 80·49 | 2·99 | 82·62 | ... | ... | |
| March ... | 139·87 | 57·77 | 94·90 | 66·03 | 28·87 | 80·46 | 3·16 | 89·67 | ... | ... | |
| April ... ... | 141·63 | 59·53 | 92·80 | 66·16 | 26·63 | 79·48 | 10·05 | 81·70 | ... | ... | |
| May ... ... | 141·48 | 60·64 | 92·51 | 65·74 | 26·77 | 79·12 | 2·95 | 80·03 | ... | ... | |
| June ... ... | 136·66 | 57·20 | 87·90 | 63·40 | 24·50 | 75·65 | 4·32 | 80·47 | ... | ... | |
| July ... ... | 132·80 | 56·06 | 84·09 | 62·06 | 22·03 | 73·07 | 2·87 | ... | ... | ... | |
| August ... | 135·12 | 53·74 | 82·35 | 58·64 | 23·70 | 70·49 | 1·78 | ... | ... | ... | |
| September ... | 136·16 | 55 07 | 85·17 | 6·00 | 28·13 | 45·08 | 3·77 | ... | ... | ... | |
| October ... | 151·74 | 55·93 | 89 45 | 60·48 | 28·96 | 30·94 | 3·21 | ... | ... | ... | |
| November ... | 15·09 | 54·06 | 9·08 | 6·56 | 31·06 | 7·82 | 1·52 | ... | ... | ... | |
| December ... | 139·87 | 53·64 | 93·00 | 57·41 | 32·38 | 75·20 | ·18 | ... | ... | ... | |
| Totals ... | 1540·37 | 675·46 | 996·06 | 644·16 | 326·14 | 775·55 | 36·90 | 497·74 | ... | ... | |
| Means ... | 128·36 | 56·28 | 83·00 | 53·68 | 27·17 | 64·62 | ... | 82·95 | ... | ... | |

# TAMALE.

## Meteorological Return for the Year 1912.

| Month. | Temperature. | | | | | | Rainfall. | | Wind. | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | 151·38 | ... | 99·74 | 57·74 | 42·00 | 78·74 | ·01 | 28·19 | ... | ... | |
| February ... | 160·96 | ... | 103·13 | 62·00 | 41·13 | 82·56 | ·02 | 41·31 | ... | ... | |
| March ... | 159·51 | ... | 103·61 | 66·32 | 37·29 | 84·96 | 1·64 | 58·06 | ... | ... | |
| April ... ... | 154·90 | ... | 99·73 | 73·46 | 26·26 | 86·59 | 3·75 | 52·30 | ... | ... | |
| May ... ... | 151·58 | 70·50 | 98·96 | 68·83 | 30·12 | 83·89 | 2·83 | 56·90 | ... | ... | |
| June ... ... | 142·43 | 63·83 | 91·36 | 61·86 | 29·50 | 76·61 | 3·57 | 69·96 | ... | ... | |
| July ... ... | 140·64 | 62·12 | 88·48 | 63·41 | 25·06 | 75·94 | 4·08 | 70·00 | ... | ... | |
| August ... | 146·61 | 7·12 | 87·74 | 68·12 | 19·61 | 72·93 | 7·25 | 70·74 | ... | ... | |
| September ... | 143·13 | 36·96 | 86·08 | 69·05 | 17·03 | 77·51 | ·17 | 78·66 | ... | ... | |
| October ... | 155·09 | 64·54 | 93·61 | 72·77 | 22·07 | 53·67 | 3·87 | 67·61 | ... | ... | |
| November ... | 159·53 | 54·04 | 98·43 | 69·97 | 28·07 | 79·20 | ... | 51·83 | ... | ... | |
| December ... | 147·45 | 64·77 | 96·54 | 69·25 | 27·48 | 82·89 | ·01 | 41·35 | ... | ... | |
| Totals ... | 1813·21 | 423·88 | 1147·41 | 802·78 | 345·62 | 935·49 | 27·20 | 686·91 | ... | ... | |
| Means ... | 151·10 | 52·98 | 95·61 | 66·89 | 28·80 | 77·95 | ... | 57·24 | ... | ... | |

# GAMBAGA.

## METEOROLOGICAL RETURN FOR THE YEAR 1912.

| MONTH. | TEMPERATURE. | | | | | | RAINFALL. | | WIND. | | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Solar Maximum. | Minimum on Grass. | Shade Maximum. | Shade Minimum. | Range. | Mean. | Amount in Inches. | Degree of Humidity. | General Direction. | Average Force. | |
| January ... | ... | 66·61 | 98·35 | 69·41 | 28·93 | 83·88 | ... | 37·32 | ... | ... | |
| February ... | ... | 69·06 | 102·96 | 73·75 | 29·20 | 88·35 | ... | 34·65 | ... | ... | |
| March ... | ... | 73·32 | 102·77 | 76·74 | 26·03 | 89·75 | ·23 | 38·96 | ... | ... | |
| April ... ... | ... | 73·46 | 99·19 | 75·96 | 23·23 | 87·07 | ·64 | 51·53 | ... | ... | |
| May ... ... | ... | 73·83 | 96·26 | 75·33 | 20·93 | 85·79 | 3·87 | 62·03 | ... | ... | |
| June ... ... | ... | 69·90 | 90·00 | 70·90 | 19·10 | 80·45 | 4·65 | 68·93 | ... | ... | |
| July ... ... | ... | 69·45 | 85·90 | 70·32 | 15·58 | 78·11 | 7·00 | 78·25 | ... | ... | |
| August ... | ... | 68·64 | 85·00 | 69·22 | 15·77 | 77·11 | 11·65 | 80·77 | ... | ... | |
| September ... | ... | 68·33 | 81·03 | 69·40 | 15·23 | 70·21 | 11·33 | 81·21 | ... | ... | |
| October ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| November ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| December ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| Totals ... | ... | 632·60 | 841·46 | 651·03 | 194·00 | 740·72 | 39·37 | 533·65 | ... | ... | |
| Means ... | ... | 70·28 | 93·49 | 72·33 | 21·55 | 82·30 | ... | 59·29 | ... | ... | |

# APPENDIX II.

## ACCRA, 1912.

### EUROPEAN MORTALITY AND INVALIDING RATES.

| Total Strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | 176 | 1 | 3 | 5·68 | 17·04 |
| Non-officials ... | 150 | 2 | 2 | 13 33 | 13·33 |
| Totals ... | 326 | 3 | 5 | 9·20 | 15·33 |

### SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... | 77 | 327 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 526 | 4,768 |
| Totals ... ... ... ... | 603 | 5,095 |

### SURGICAL OPERATIONS, 217.

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### EUROPEAN MORTALITY AND INVALIDING RATES, 1911.

| Total Strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | 161 | 2 | 8 | 12·42 | 49·68 |
| Non-officials ... | 136 | 4 | 8 | 29·41 | 58·82 |
| Totals ... | 297 | 6 | 16 | 20·20 | 53·86 |

### SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... | 92 | 247 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 425 | 4,015 |
| Totals ... ... ... ... | 517 | 4,262 |

### SURGICAL OPERATIONS, 119.

# SECCONDEE.

## European Mortality and Invaliding Rates, 1912.

| Total Strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | ... 160 | 3 | 4 | 18·75 | 25·00 |
| Non-officials | ... 141 | 2 | 2 | 14·18 | 14·18 |
| Totals | ... 301 | 5 | 6 | 16·61 | 19·60 |

## Summary of Hospital and Dispensary Return.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... | 154 | 248 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 613 | 3,762 |
| Totals ... ... ... ... | 767 | 4,010 |

## Surgical Operations, 67.

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## European Mortality and Invaliding Rates, 1911.

| Total Strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | ... 173 | 2 | 5 | 11·56 | 28·90 |
| Non-officials | ... 144 | 4 | 6 | 27·77 | 41·66 |
| Totals | ... 317 | 6 | 11 | 18·92 | 34·70 |

## Summary of Hospital and Dispensary Return.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | 192 | 181 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 377 | 3,199 |
| Totals ... ... ... ... ... | 569 | 3,380 |

## Surgical Operations, 57.

# CAPE COAST.

## European Mortality and Invaliding Rates, 1912.

| Total Strength. | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|
| Officials ... ... 57 | 0 | 0 | 0 | 0 |
| Non-officials ... 56 | 2 | 2 | 35·71 | 35·71 |
| Totals ... 113 | 2 | 2 | 17·69 | 17·69 |

## Summary of Hospital and Dispensary Return.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | 24 | 73 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 226 | 3,281 |
| Totals ... ... ... ... | 250 | 3,354 |

## Surgical Operations, 63.

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## European Mortality and Invaliding Rates, 1911.

| Total Strength. | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|
| Officials ... ... 34 | 0 | 0 | 0 | 0 |
| Non-officials ... 53 | 2 | 2 | 37·73 | 37·73 |
| Totals ... 87 | 2 | 2 | 22·88 | 22·88 |

## Summary of Hospital and Dispensary Return.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... | 18 | 9 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... | 180 | 3,987 |
| Totals ... ... ... ... | 198 | 3,996 |

## Surgical Operations, 58.

# AXIM.

## EUROPEAN MORTALITY AND INVALIDING RATES, 1912.

| Total Strength. | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|
| Officials ... ... 131 | 1 | 0 | 7·63 | 0 |
| Non-officials ... 111 | 3 | 0 | 27·02 | 0 |
| Totals ... 242 | 4 | 0 | 16 52 | 0 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| — | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | 13 | 27 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 120 | 2,675 |
| Totals ... ... ... ... ... | 133 | 2,702 |

SURGICAL OPERATIONS, 42.

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## EUROPEAN MORTALITY AND INVALIDING RATES, 1911.

| Total Strength. | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|
| Officials ... ... 18 | 0 | 1 | 0 | 5·55 |
| Non-officials ... 109 | 4 | 2 | 36·69 | 18·34 |
| Totals ... 127 | 4 | 3 | 31·49 | 26·62 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| — | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | 12 | 10 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 91 | 3,656 |
| Totals ... ... ... ... ... | 103 | 3,666 |

SURGICAL OPERATIONS, 30.

# SALTPOND.

## EUROPEAN MORTALITY AND INVALIDING RATES, 1912.

| Total Strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | ... 28 | 0 | 0 | 0 | 0 |
| Non-officials | ... 15 | 0 | 0 | 0 | 0 |
| Totals | ... 43 | 0 | 0 | 0 | 0 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| — | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | — | 4 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... | No hospital | 992 |
| Totals ... ... ... ... ... | — | 996 |

SURGICAL OPERATIONS, *nil.*

## EUROPEAN MORTALITY AND INVALIDING RATES, 1911.

| Total Strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | ... 14 | 0 | 0 | 0 | 0 |
| Non-officials | ... 18 | 0 | 0 | 0 | 0 |
| Totals | ... 32 | 0 | 0 | 0 | 0 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| — | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | No hospital | 8 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | — | 859 |
| Totals ... ... ... ... | — | 867 |

SURGICAL OPERATIONS, *nil.*

## WINNEBAH.

### European Mortality and Invaliding Rates, 1912.

| Total Strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | 12 | 0 | 0 | 0 | 0 |
| Non-officials ... | 32 | 0 | 1 | 0 | 31·25 |
| Totals ... | 44 | 0 | 1 | 0 | 22·72 |

### Summary of Hospital and Dispensary Return.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | 1 | 8 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 69 | 1,110 |
| Totals ... ... ... ... ... | 70 | 1,118 |

Surgical Operations, 11.

### European Mortality and Invaliding Rates, 1911.

| Total Strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | 15 | 0 | 0 | 0 | 0 |
| Non-officials ... | 36 | 1 | 2 | 27·77 | 55·54 |
| Totals ... | 51 | 1 | 2 | 19·60 | 39·20 |

### Summary of Hospital and Dispensary Return.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | 2 | 5 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 33 | 1,321 |
| Totals ... ... ... ... ... | 35 | 1,326 |

Surgical Operations, 12.

# TARQUAH.

## EUROPEAN MORTALITY AND INVALIDING RATES, 1912.

| Total Strength. | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|
| Officials ... 24 | 0 | 0 | 0 | 0 |
| Non-officials ... 794 | 14 | 61 | 17·63 | 76·82 |
| Totals .. 818 | 14 | 61 | 17·11 | 74·57 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-Patients. | Out-Patients. |
|---|---|---|
| Europeans ... ... ... ... | 1 | 16 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... | 97 | 1,454 |
| Totals ... ... ... ... | 98 | 1,470 |

SURGICAL OPERATIONS, 35.

## EUROPEAN MORTALITY AND INVALIDING RATES, 1911.

| Total Strength. | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|
| Officials ... ... 20 | 0 | 0 | 0 | 0 |
| Non-officials ... 650 | 12 | 37 | 18·16 | 56·92 |
| Totals ... 670 | 12 | 37 | 79·91 | 55·22 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... | 3 | 31 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... | 86 | 1,031 |
| Totals ... ... ... ... | 89 | 1,062 |

SURGICAL OPERATIONS, 7.

# ELMINA.

## EUROPEAN MORTALITY AND INVALIDING RATES, 1912.

| Total strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... ... | 0 | 0 | 0 | 0 | 0 |
| Non-officials ... | 5 | 0 | 1 | 0 | 200·0 |
| Totals ... | 5 | 0 | 1 | 0 | 200·0 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... | 0 | 3 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 5 | 507 |
| Totals ... ... ... ... | 5 | 510 |

SURGICAL OPERATIONS, *Nil.*

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## EUROPEAN MORTALITY AND INVALIDING RATES, 1911.

| Total strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... ... | 1 | 0 | 0 | 0 | 0 |
| Non-officials ... | 5 | 0 | 0 | 0 | 0 |
| Totals ... | 6 | 0 | 0 | 0 | 0 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | — | 4 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... | 5 | 742 |
| Totals ... ... ... ... | 5 | 746 |

SURGICAL OPERATIONS, 9.

## QUITTAH.

### EUROPEAN MORTALITY AND INVALIDING RATES, 1912.

| Total strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... ... | 16 | 0 | 1 | 0 | 62·5 |
| Non-officials ... | 24 | 0 | 0 | 0 | 0 |
| Totals ... | 40 | 0 | 0 | 0 | 25·0 |

### SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... | 0 | 6 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... | 85 | 2,247 |
| Totals ... ... ... ... | 85 | 2,253 |

SURGICAL OPERATIONS, 88.

### EUROPEAN MORTALITY AND INVALIDING RATES, 1911.

| Total strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... ... | 23 | 0 | 0 | 0 | 0 |
| Non-officials ... | 59 | 0 | 0 | 0 | 0 |
| Totals ... | 82 | 0 | 0 | 0 | 0 |

### SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... | — | 20 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... | 48 | 1,882 |
| Totals ... ... ... ... | 48 | 1,902 |

SURGICAL OPERATIONS, 84.

# ADDAH.

## EUROPEAN MORTALITY AND INVALIDING RATES, 1912.

| Total strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | 30 | 0 | 0 | 0 | 0 |
| Non-officials ... | 36 | 0 | 1 | 0 | 27·77 |
| Totals ... | 66 | 0 | 1 | 0 | 15·15 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | 1 | 15 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 55 | 1,840 |
| Totals ... ... ... ... ... | 56 | 1,855 |

SEVERAL MINOR SURGICAL OPERATIONS.

## EUROPEAN MORTALITY AND INVALIDING RATES, 1911.

| Total strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | 8 | 0 | 0 | 0 | 0 |
| Non-officials ... | 23 | 0 | 0 | 0 | 0 |
| Totals ... | 31 | 0 | 0 | 0 | 0 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | 2 | 10 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 36 | 1,118 |
| Totals ... ... ... ... ... | 38 | 1,128 |

SURGICAL OPERATIONS, 9.

# AKUSE.

## EUROPEAN MORTALITY AND INVALIDING RATES, 1912.

| Total strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | 20 | 0 | 0 | 0 | 0 |
| Non-officials ... | 51 | 0 | 3 | 0 | 58·85 |
| Totals ... | 71 | 0 | 3 | 0 | 42·25 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | 0 | 6 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 154 | 1,378 |
| Totals ... ... ... ... ... | 154 | 1,384 |

SURGICAL OPERATIONS, 48.

## EUROPEAN MORTALITY AND INVALIDING RATES, 1911.

| Total strength. | | Deaths. | Invalidings. | Death rate per 1,000. | Invaliding rate per 1,000. |
|---|---|---|---|---|---|
| Officials ... | 24 | 0 | 0 | 0 | 0 |
| Non-officials ... | 57 | 1 | 2 | 17·54 | 35·08 |
| Totals ... | 81 | 1 | 2 | 12·34 | 24·68 |

## SUMMARY OF HOSPITAL AND DISPENSARY RETURN.

| —— | In-patients. | Out-patients. |
|---|---|---|
| Europeans ... ... ... ... ... | — | 32 |
| Natives, including W.A.F.F. and Civil Police ... ... ... ... ... | 94 | 1012 |
| Totals ... ... ... ... ... | 94 | 1044 |

SURGICAL OPERATIONS, 72.

# APPENDIX III.

## HOSPITALS OF THE GOLD COAST COLONY, ASHANTI AND THE NORTHERN TERRITORIES.

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1912.

| Diseases. | Remaining in Hospital at end of 1911. | Yearly Total. | | Total Cases treated. | Remaining in Hospital at end of 1912. | Remarks. |
|---|---|---|---|---|---|---|
| | | Admissions. | Deaths. | | | |
| Beri-Beri ... ... | 2 | 31 | 8 | 33 | 3 | |
| Chicken-Pox ... ... | — | 234 | — | 234 | 14 | |
| Dysentery ... ... | 4 | 162 | 29 | 166 | 5 | |
| Enteric ... ... ... | — | 4 | 2 | 4 | — | |
| Erysipelas ... ... | — | 1 | 1 | 1 | — | |
| Gonorrhœa ... ... | 1 | 115 | — | 116 | 4 | |
| Leprosy—Anæsthetic ... | 1 | 4 | — | 5 | 4 | |
| Malaria— | | | | | | |
| (*a*) Tertian ... ... | — | 83 | 1 | 83 | 4 | |
| (*b*) Type undiagnosed | — | 87 | — | 87 | — | |
| (*c*) Aestivo-Autumnal | 3 | 285 | 4 | 288 | 6 | |
| (*d*) Irregular... ... | — | 7 | — | 7 | — | |
| (*e*) Blackwater ... | — | 13 | 6 | 13 | — | |
| Measles ... ... ... | — | 12 | — | 12 | — | |
| Pyæmia ... ... ... | — | 2 | — | 2 | — | |
| Pneumonia ... ... | 1 | 101 | 29 | 102 | 3 | |
| Rabies ... ... ... | — | 1 | — | 1 | — | |
| Rheumatic Fever ... | 2 | 84 | — | 86 | — | |
| Septicæmia ... ... | — | 7 | — | 7 | 3 | |
| Trypanosomiasis (Sleeping Sickness) ... ... | 3 | 14 | 3 | 17 | 1 | |
| Small-Pox ... ... | — | 172 | 7 | 172 | 3 | |
| Syphilis (*a*) Primary ... | 2 | 7 | — | 9 | — | |
| (*b*) Secondary ... | — | 22 | 1 | 22 | 2 | |
| Tetanus ... ... ... | — | 1 | 1 | 1 | — | |
| Tuberculosis ... ... | 1 | 41 | 13 | 42 | — | |
| Yaws ... ... ... | — | 20 | — | 20 | — | |
| Yellow Fever ... ... | — | 6 | 4 | 6 | — | |
| Alcoholism ... ... | — | 11 | — | 11 | — | |
| Anæmia ... ... .. | — | 12 | — | 12 | — | |
| Cretinism ... ... | — | 1 | — | 1 | — | |
| Debility ... ... ... | — | 27 | 5 | 27 | — | |
| Neuritis ... ... ... | — | 6 | — | 6 | — | |
| Meningitis ... ... | — | 12 | 7 | 12 | — | |
| Myelitis ... ... ... | — | 3 | — | 3 | — | |
| Abscess of Brain ... | — | 1 | 1 | 1 | — | |
| Congestion of Brain ... | — | 1 | — | 1 | — | |
| Cerebral Hæmorrhage ... | — | 1 | — | 1 | — | |
| Apoplexy ... ... | — | 1 | — | 1 | — | |
| Paralysis... ... ... | — | 7 | 3 | 7 | — | |
| Epilepsy ... ... ... | — | 13 | 3 | 13 | — | |
| Neuralgia ... ... | — | 6 | — | 6 | — | |
| Hysteria ... ... ... | — | 1 | — | 1 | — | |
| Neurasthenia ... ... | 1 | 2 | — | 3 | — | |
| Vertigo ... ... ... | — | 1 | — | 1 | — | |
| Carried forward ... | 21 | 1,622 | 128 | 1,643 | 52 | |

| Diseases. | Remaining in Hospital at end of 1911. | Yearly Total. | | Total Cases treated. | Remaining in Hospital at end of 1912. | Remarks. |
|---|---|---|---|---|---|---|
| | | Admissions. | Deaths. | | | |
| Brought forward ... | 21 | 1,622 | 128 | 1,643 | 52 | |
| Mental Diseases :— | | | | | | |
| Mania ... ... | — | 3 | 1 | 3 | — | |
| Dementia ... ... | — | 2 | — | 2 | — | |
| Delusional Insanity | — | 2 | — | 2 | — | |
| Diseases of the Eye :— | | | | | | |
| Conjunctivitis ... | — | 43 | — | 43 | — | |
| Keratitis ... ... | — | 1 | — | 1 | — | |
| Ulceration of Cornea | — | 2 | — | 2 | — | |
| Iritis ... ... | — | 2 | — | 2 | — | |
| Cataract ... ... | — | 2 | — | 2 | — | |
| Ectropion ... ... | — | 1 | — | 1 | — | |
| Amaurosis ... ... | — | 1 | — | 1 | — | |
| Photophobia ... | — | 1 | — | 1 | — | |
| Oedema ... ... | — | 1 | — | 1 | — | |
| Diseases of the Ear :— | | | | | | |
| Inflammation ... | — | 2 | — | 2 | — | |
| Diseases of the Circulatory System :— | | | | | | |
| Pericarditis ... | 1 | 12 | 6 | 13 | 1 | |
| Endocarditis ... | — | 2 | — | 2 | — | |
| Valvular Mitral ... | 2 | 14 | 7 | 16 | — | |
| Aortic ... | — | 4 | — | 4 | — | |
| Aneurism ... ... | — | 1 | 1 | 1 | — | |
| Tachycardia ... | — | 1 | — | 1 | — | |
| Phlebitis ... ... | — | 6 | 1 | 6 | — | |
| Diseases of the Respiratory System :— | | | | | | |
| Laryngitis ... ... | — | — | — | — | — | |
| Bronchitis ... | — | 86 | 3 | 86 | 2 | |
| Broncho-Pneumonia | — | 5 | 1 | 5 | 1 | |
| Laceration of Lung | — | 1 | 1 | 1 | — | |
| Asthma ... ... | — | 1 | — | 1 | — | |
| Pleurisy ... ... | 2 | 54 | — | 56 | 1 | |
| Empyema ... ... | — | 1 | 1 | 1 | — | |
| Diseases of the Digestive System :— | | | | | | |
| Stomatitis ... ... | — | 5 | — | 5 | — | |
| Caries of Teeth ... | — | 2 | — | 2 | — | |
| Glossitis ... ... | — | — | — | — | — | |
| Sore Throat ... | — | 3 | — | 3 | — | |
| Inflammation of Tonsils ... ... | — | 4 | — | 4 | — | |
| Gastritis ... ... | 1 | 37 | — | 38 | — | |
| Salivary Glands ... | — | 1 | — | 1 | — | |
| Dilitation of Stomach | — | 1 | — | 1 | — | |
| Dyspepsia ... ... | — | 3 | — | 3 | — | |
| Enteritis ... ... | — | 25 | 3 | 25 | — | |
| Appendicitis ... | — | 10 | 1 | 10 | 1 | |
| Colitis ... ... | — | 3 | 1 | 3 | 1 | |
| Hernia ... ... | — | 13 | 3 | 13 | — | |
| Diarrhœa ... ... | 2 | 96 | 4 | 98 | 2 | |
| Constipation ... | — | 14 | — | 14 | — | |
| Colic ... ... | — | 13 | — | 13 | — | |
| Carried forward ... | 29 | 2,103 | 162 | 2,132 | 61 | |

| Diseases. | Remaining in Hospital at end of 1911. | Yearly Total. | | Total Cases treated. | Remaining in Hospital at end of 1912. | Remarks. |
|---|---|---|---|---|---|---|
| | | Admissions. | Deaths. | | | |
| Brought forward ... | 29 | 2,103 | 162 | 2,132 | 61 | |
| Diseases of the Digestive System—*continued.* | | | | | | |
| Hæmorrhoids ... | 2 | 11 | — | 13 | — | |
| Peri-hepatitis ... | — | 2 | — | 2 | — | |
| Hepatitis—Acute ... | — | 24 | — | 24 | — | |
| Abscess of Liver ... | — | 3 | 3 | 3 | — | |
| Cirrhosis of Liver ... | — | 2 | 1 | 2 | — | |
| Jaundice ... ... | — | 4 | 2 | 4 | — | |
| Peritonitis ... ... | — | 5 | — | 5 | — | |
| Ascites ... ... | — | 5 | 2 | 5 | 1 | |
| Fistula in Ano ... | — | 2 | — | 2 | — | |
| Fæcal Accumulation | — | 2 | — | 2 | — | |
| Intestinal Catarrh ... | — | 2 | — | 2 | — | |
| Intestinal Obstruction ... ... | — | 2 | 1 | 2 | — | |
| Diseases of the Lymphatic System :— | | | | | | |
| Splenitis ... ... | — | 3 | — | 3 | — | |
| Inflammation of Lymphatic Gland | — | 33 | — | 33 | 5 | |
| Lymphangitis ... | — | 1 | — | 1 | — | |
| Elephantiasis (Scrotum) ... ... | — | 23 | 2 | 23 | 1 | |
| Diseases of the Urinary System :— | | | | | | |
| Acute Nephritis ... | 1 | 10 | 5 | 11 | — | |
| Bright's Disease ... | — | 8 | 6 | 8 | 2 | |
| Cystitis ... ... | 1 | 11 | 3 | 12 | — | |
| Hæmaturia ... | — | 2 | — | 2 | 1 | |
| Diseases of the Generative System :— | | | | | | |
| Urethral Fistula ... | — | 2 | — | 2 | — | |
| Balanitis ... ... | — | 4 | — | 4 | 1 | |
| Stricture ... ... | 1 | 11 | — | 12 | 3 | |
| Prostatitis . . ... | — | 1 | — | 1 | — | |
| Soft Chancre ... | — | 8 | — | 8 | — | |
| Phimosis ... ... | — | 12 | — | 12 | — | |
| Abscess of Scrotum | — | 3 | — | 3 | — | |
| Hydrocele ... ... | 1 | 18 | — | 19 | 2 | |
| Orchitis ... ... | 1 | 7 | — | 8 | — | |
| Epididymitis ... | — | 5 | — | 5 | — | |
| Paraphimosis ... | — | 9 | — | 9 | — | |
| Extravasation of Urine ... ... | — | 1 | 1 | 1 | — | |
| Sloughing Scrotum... | — | 1 | 1 | 1 | — | |
| False Urethral Passage ... ... | — | 1 | — | 1 | — | |
| (Female Organs) : | | | | | | |
| Utrine Inertia ... | — | 1 | — | 1 | — | |
| Ovaritis ... ... | — | 1 | — | 1 | 1 | |
| Endometritis ... | — | 7 | — | 7 | — | |
| Dysmenorrhœa ... | — | 4 | — | 4 | — | |
| Fibro Myomata Uteri ... ... | — | 1 | — | 1 | — | |
| Abortion ... ... | — | 1 | — | 1 | — | |
| Delayed Labour ... | 1 | 7 | 3 | 8 | — | |
| Carried forward ... | 37 | 2,363 | 192 | 2,400 | 78 | |

| Diseases. | Remaining in Hospital at end of 1911. | Yearly Total. | | Total Cases treated. | Remaining in Hospital at end of 1912. | Remarks. |
|---|---|---|---|---|---|---|
| | | Admissions. | Deaths. | | | |
| Brought forward ... | 37 | 2,363 | 192 | 2,400 | 78 | |
| Diseases of the Generative System—*continued.* | | | | | | |
| Retained Placenta... | — | 2 | 1 | 2 | — | |
| Perimetritis ... | — | 1 | — | 1 | — | |
| Puerperal Septicæmia | — | 3 | — | 3 | — | |
| Osteitis ... ... | — | 5 | — | 5 | 3 | |
| Arthritis ... ... | — | 42 | 1 | 42 | 3 | |
| Spondylitis... ... | — | 1 | 1 | 1 | — | |
| Bursitis ... ... | — | 8 | — | 8 | 1 | |
| Osteomylitis ... | 1 | 1 | 1 | 2 | — | |
| Osteo-Arthritis ... | — | 2 | — | 2 | — | |
| Periostitis ... ... | — | 19 | — | 19 | 1 | |
| Myalgia ... ... | — | 5 | — | 5 | — | |
| Diseases of Connective Tissue :— | | | | | | |
| Cellulitis ... ... | — | 66 | — | 66 | — | |
| Abscess ... ... | — | 59 | 5 | 59 | 2 | |
| Diseases of the Skin :— | | | | | | |
| Erythema ... ... | — | 1 | — | 1 | — | |
| Eczema ... ... | — | 4 | — | 4 | — | |
| Boil... ... ... | — | 11 | — | 11 | — | |
| Whitlow ... ... | — | 3 | — | 3 | — | |
| Herpes ... ... | — | 1 | — | 1 | — | |
| Derimatitis... ... | — | 4 | — | 4 | — | |
| Ulcers ... ... | 9 | 222 | 1 | 231 | 9 | |
| Tinea ... ... | — | 4 | — | 4 | — | |
| Scabies ... ... | — | 1 | — | 1 | — | |
| Pemphigus ... ... | — | 1 | — | 1 | — | |
| Injuries—General ... | — | 16 | 1 | 16 | 3 | |
| Local... ... | 11 | 556 | 19 | 567 | 20 | |
| Surgical Operations ... | 5 | 105 | 4 | 110 | 7 | |
| Tumours ... ... | — | 12 | 3 | 12 | 1 | |
| Poisons ... ... ... | — | 12 | — | 12 | — | |
| Diseases undiagnosed ... | 1 | 32 | — | 33 | 23 | |
| Parasites—Animal :— | | | | | | |
| Bilharziosis ... | — | 3 | — | 3 | — | |
| Jigger ... ... | — | 1 | — | 1 | — | |
| Trematoda (Flukes) | — | 5 | — | 5 | — | |
| Cestoda :— | | | | | | |
| Tænia Solium ... | — | 8 | — | 8 | — | |
| Nematoda : — | | | | | | |
| Ascaris ... ... | — | 11 | — | 11 | — | |
| Dracunculus ... | — | 243 | — | 243 | 13 | |
| Filaria Loa... ... | — | 1 | — | 1 | — | |
| Ankylostomiasis ... | — | 3 | 1 | 3 | — | |
| Total ... | 64 | 3,837 | 230 | 3,901 | 164 | |

## APPENDIX IV.

## HOSPITALS OF THE GOLD COAST COLONY, ASHANTI AND THE NORTHERN TERRITORIES.

## RETURN OF DISEASES AND DEATHS (OUT-PATIENTS) FOR THE YEAR 1912.

| Diseases. | Total Cases. | Total Deaths. |
|---|---|---|
| Beri-Beri ... ... ... ... ... ... ... | 61 | |
| Chicken-Pox ... ... ... ... ... ... | 82 | |
| Dysentery ... ... ... ... ... ... | 383 | |
| Erysipelas ... ... ... ... ... ... | 3 | |
| Gonorrhœa .. ... ... ... ... ... | 582 | |
| Leprosy Anæsthetic ... ... ... ... ... | 30 | |
| Malaria (*a*) Aestivo-autumnal ... ... ... ... | 1,257 | |
| (*b*) Type undiagnosed ... ... ... ... | 517 | |
| (*c*) Malarial Cachexea ... ... ... ... | 32 | |
| (*d*) Black Water Fever... ... ... ... | 1 | |
| Measles ... ... ... ... ... ... ... | 33 | |
| Mumps ... ... ... .. ... ... ... | 14 | |
| Pneumonia ... ... ... ... ... ... | 359 | |
| Rheumatic Fever ... ... ... ... ... | 1,906 | |
| Septicæmia ... ... ... ... ... .. | 75 | |
| Small-Pox ... ... ... ... ... ... | 49 | 26 |
| Syphilis (*a*) Primary ... ... ... ... ... | 111 | |
| (*b*) Secondary ... ... ... ... ... | 404 | |
| Tuberculosis ... ... ... ... ... ... | 93 | |
| Whooping Cough... ... ... ... ... ... | 3 | |
| Yaws ... ... ... ... ... ... ... | 607 | |
| INTOXICATIONS. | | |
| Alcoholism ... ... ... ... ... ... | 9 | |
| GENERAL DISEASES. | | |
| Anæmia ... ... ... ... ... ... ... | 160 | |
| Debility ... ... ... ... ... ... ... | 383 | |
| Diabetes ... ... ... .. ... ... ... | 7 | |
| Febricula ... ... ... ... ... ... ... | 209 | |
| Rickets ... ... ... ... ... ... ... | 1 | |
| LOCAL DISEASES. | | |
| Diseases of the Nervous System :— | | |
| Sub-section 1. | | |
| Neuritis ... ... ... ... ... ... | 64 | |
| Meningitis ... ... ... ... ... ... | 37 | |
| Carried forward ... ... ... | 7,472 | 26 |

| Diseases. | Total Cases. | Total Deaths. |
|---|---|---|
| Brought forward ... ... ... | 7,472 | 26 |
| LOCAL DISEASES—(*contd.*). | | |
| Diseases of the Nervous System—(*contd.*) :— | | |
| Sub-section 2. | | |
| Epilepsy ... ... ... ... ... ... | 24 | |
| Neuralgia ... ... ... ... ... ... | 152 | |
| Hysteria ... ... ... ... ... ... | 25 | |
| Neurasthenia ... ... ... ... ... | 9 | |
| Vertigo ... ... ... ... ... ... | 57 | |
| Torticollis ... ... ... ... ... ... | 5 | |
| Sub-section 3. | | |
| Mental Diseases :— | | |
| Insanity ... ... ... ... ... ... | 6 | |
| Diseases of the Eye :— | | |
| Conjunctivitis ... ... ... ... ... | 1,192 | |
| Keratitis ... ... ... ... ... ... | 64 | |
| Iritis ... ... ... ... ... ... | 44 | |
| Blepharitis ... ... ... ... ... ... | 4 | |
| Cataract ... ... ... ... ... ... | 25 | |
| Diseases of the Ear :— | | |
| Inflammation ... ... ... ... ... | 736 | |
| Diseases of the Nose :— | | |
| Coryza ... ... ... ... ... ... | 37 | |
| Nasal Catarrh ... ... ... ... ... | 67 | |
| Parosinia ... ... ... ... ... ... | 1 | |
| Diseases of the Circulatory System :— | | |
| Pericarditis ... ... ... ... ... ... | 113 | |
| Endocarditis ... ... ... ... ... | 7 | |
| Valvular Mitral ... ... ... ... ... | 38 | |
| Blood Vessels ... ... ... ... ... | 9 | |
| Diseases of the Respiratory System :— | | |
| Laryngitis ... ... ... ... ... ... | 50 | |
| Bronchitis ... ... ... ... ... ... | 4,150 | |
| Asthma ... ... ... ... ... ... | 39 | |
| Broncho-pneumonia... ... ... ... ... | 131 | |
| Pleurisy ... ... ... ... ... ... | 329 | |
| Emphysema ... ... ... ... ... ... | 1 | |
| Diseases of the Digestive System :— | | |
| Stomatitis ... ... ... ... ... ... | 313 | |
| Caries of Teeth ... ... ... ... ... | 781 | |
| Glossitis ... ... ... ... ... ... | 105 | |
| Sore Throat ... ... ... ... ... ... | 154 | |
| Inflammation of Tonsils ... ... ... ... | 176 | |
| Gastritis ... ... ... ... ... ... | 1,031 | |
| Salivary Gland ... ... ... ... ... | 2 | |
| Lip ... ... ... ... ... ... ... | 7 | |
| Dyspepsia ... ... ... ... ... ... | 525 | |
| Enteritis ... ... ... ... ... ... | 44 | |
| Appendicitis... ... ... ... ... ... | 5 | |
| Colitis ... ... ... ... ... ... | 1 | |
| Jaws and Antrim ... ... ... ... . | 13 | |
| Hernia ... ... ... ... .. ... | 13 | |
| Diarrhœa ... ... ... ... ... ... | 1,205 | |
| Constipation... ... ... ... ... ... | 3,948 | |
| Colic ... ... ... ... ... ... ... | 70 | |
| Hæmorrhoids ... ... ... ... ... | 144 | |
| Hepatitis—Acute ... ... ... ... ... | 73 | |
| Carried forward ... ... ... | 23,397 | 26 |

| Diseases. | Total Cases. | Total Deaths. |
|---|---|---|
| Brought forward ... ... ... | 23,397 | 26 |
| Diseases of the Digestive System—(*contd.*):— | | |
| Intestinal Catarrh ... ... ... ... ... | 12 | |
| Peritonitis ... ... ... ... ... ... | 6 | |
| Gall Bladder ... ... ... ... ... | 11 | |
| Fæcal Accumulation ... ... ... ... | 2 | |
| Fistula in Ano ... ... ... ... ... | 2 | |
| Diseases of the Lymphatic System:— | | |
| Splenitis ... ... ... ... ... ... | 120 | |
| Inflammation of Lymphatic Gland ... ... | 362 | |
| Lymphangitis ... ... ... ... ... | 10 | |
| Elephantiasis ... ... ... ... ... | 1 | |
| Thyroid Gland ... ... ... ... ... | 2 | |
| Diseases of the Urinary System:— | | |
| Acute Nephritis ... ... ... ... ... | 15 | |
| Bright's Disease ... ... ... ... ... | 23 | |
| Cystitis ... ... ... ... ... ... | 86 | |
| Hæmaturia ... ... ... ... ... ... | 3 | |
| Diseases of the Generative System—Male Organs:— | | |
| Urethritis ... ... ... ... ... ... | 59 | |
| Stricture ... ... ... ... ... ... | 29 | |
| Balanitis ... ... ... ... ... ... | 18 | |
| Prostatitis ... ... ... ... ... ... | 3 | |
| Soft Chancre ... ... ... ... ... | 27 | |
| Inflammation of Scrotum ... ... ... ... | 31 | |
| Hydrocele ... ... ... ... ... ... | 71 | |
| Orchitis ... ... ... ... ... ... | 99 | |
| Spermatic Cord ... ... ... ... ... | — | |
| Paraphimosis ... ... ... ... ... | 13 | |
| Phimosis ... ... ... ... ... ... | 14 | |
| Female Organs:— | | |
| Ovaritis ... ... ... ... ... ... | 16 | |
| Endometritis ... ... ... ... ... | 36 | |
| Displacement of Uterus ... ... ... ... | 65 | |
| Vaginitis ... ... ... ... ... ... | 31 | |
| Amenorrhœa ... ... ... ... ... | 35 | |
| Dysmenorrhœa ... ... ... ... ... | 85 | |
| Inflammation of Vulva ... ... ... ... | 1 | |
| Leucorrhœa ... ... ... ... ... ... | 2 | |
| Delayed Labour ... ... ... ... ... | 1 | |
| Sterility ... ... ... ... ... ... | 5 | |
| Mastitis ... ... ... ... ... ... | 42 | |
| Menorrhagia ... ... ... ... ... | 25 | |
| Vulva ... ... ... ... ... ... | 2 | |
| Diseases of Organs of Locomotion:— | | |
| Osteomyelitis ... ... ... ... ... | 163 | |
| Arthritis ... ... ... ... ... ... | 222 | |
| Lumbago ... ... ... ... ... ... | 55 | |
| Spondylitis ... ... ... ... ... ... | 13 | |
| Bursitis ... ... ... ... ... ... | 178 | |
| Tendons & Fasciæ ... ... ... ... ... | 24 | |
| Myalgia ... ... ... ... ... ... | 384 | |
| Periostitis ... ... ... ... ... ... | 94 | |
| Diseases of Connective Tissue:— | | |
| Cellulitis ... ... ... ... ... ... | 414 | |
| Abscess ... ... ... ... ... ... | 1,458 | |
| Carried forward ... ... ... | 27,767 | 26 |

| Diseases. | Total Cases. | Total Deaths. |
|---|---|---|
| Brought forward ... ... ... | 27,767 | 26 |
| Diseases of the Skin :— | | |
| Urticaria ... ... ... ... ... ... | 94 | |
| Eczema ... ... ... ... ... ... | 213 | |
| Boil ... ... ... ... ... ... ... | 496 | |
| Prickly Heat ... ... ... ... ... | 7 | |
| Erythema ... ... ... ... ... ... | 6 | |
| Scrofula ... ... ... ... ... ... | 2 | |
| Tinea... ... ... ... ... ... ... | 58 | |
| Scabies ... ... ... ... ... ... | 892 | |
| Ulcers ... ... ... ... ... ... | 4,030 | |
| Intertrigo ... ... ... ... ... ... | 4 | |
| Whitlow ... ... ... ... ... ... | 123 | |
| Dermatitis ... ... ... ... ... ... | 124 | |
| Impetigo Contagiosa ... ... ... ... | 23 | |
| Acne ... ... ... ... ... ... | 3 | |
| Corn ... ... ... ... ... ... ... | 3 | |
| Icthyosis ... ... ... ... ... ... | 2 | |
| Herpes ... ... ... ... ... ... | 2 | |
| Injuries, General :— ... ... ... ... ... | 3 | |
| Local ... ... ... ... ... ... ... | 6,158 | 1 |
| Surgical Operations ... ... ... ... ... ... | 66 | |
| Tumours ... ... ... ... ... ... | 177 | |
| Poisons ... ... ... ... ... ... | 26 | |
| Undiagnosed ... ... ... ... ... | 77 | |
| Parasites :— | | |
| Trematoda ... ... ... ... ... ... | 43 | |
| Bilharziosis ... ... ... ... ... ... | 10 | |
| Cestoda ... ... ... ... ... ... | 448 | |
| Ascaris ... ... ... ... .. ... | 106 | |
| Dracunculus ... ... ... ... ... | 1,050 | |
| Anklyostomiasis ... ... ... ... ... | 1 | |
| Oxyuris Vermicularis ... ... ... ... | 14 | |
| Insecta :— | | |
| Pulex Penetrans ... ... ... ... ... | 119 | |
| Pediculus Capitis ... ... ... ... ... | 184 | |
| TOTAL ... ... ... ... | 42,331 | 27 |

# APPENDIX V.

## RETURNS.

### MEDICAL STAFF ON THE 31ST DECEMBER, 1912.

| | |
|---|---|
| Principal Medical Officer | F. G. Hopkins. |
| Deputy Principal Medical Officer | E. H. Tweedy. |
| Senior Sanitary Officer | T. E Rice. |
| Provincial Medical Officer | H. B S. Montgomery. |
| ,, ,, ,, | C. E. S. Watson. |
| Senior Medical Officer | E. W. Graham. |
| ,, ,, ,, | C. B. Hunter. |
| ,, ,, ,, | J. A. Clough. |
| Sanitary Officer | G. C. Walker. |
| Medical Officer | P. M. Tobit. |
| ,, ,, | J. H. Collier. |
| ,, ,, | F. S. Harper. |
| ,, ,, | W. W. Claridge. |
| ,, ,, | *F. J. A. Beringer. |
| ,, ,, | C. H. D. Ralph. |
| ,, ,, | G. V. Le Fanu. |
| ,, ,, | R. O. White. |
| ,, ,, | A. C. Lorena. |
| ,, ,, | J. C. S. McDouall. |
| ,, ,, | A. B. Tighe. |
| ,, ,, | W. M. Wade. |
| ,, ,, | F. I. M. Jupe. |
| ,, ,, | F. H. Storey. |
| ,, ,, | T. H. Dugon. |
| ,, ,, | A. W. Atkinson. |
| ,, ,, | G. E. H. Le Fanu. |
| ,, ,, | *H. O'H. H. May. |
| ,, ,, | J. M. O'Brien. |
| ,, ,, | H. T. Palmer. |
| ,, ,, | A. M. Dowdall. |
| ,, ,, | R. Whyte. |
| ,, ,, | E. Brabazon. |
| ,, ,, | H. W. Gush. |
| ,, ,, | G. J. W. Keigwin. |
| ,, ,, | A. Lundie. |
| ,, ,, | G. F. Forde. |
| ,, ,, | G. de P. d'Amico. |
| ,, ,, | C. W. S. Boggs. |
| ,, ,, | J. A. Beamish. |
| ,, ,, | D. Duff. |
| ,, ,, | M. W. Fraser. |
| ,, ,, | S. Goodbrand. |
| ,, ,, | J. E. Moffatt. |
| ,, ,, | R. Mugliston. |
| ,, ,, | J. Donnelly. |
| ,, ,, | H. F. Hamilton. |
| ,, ,, | P. D. Oakley. |
| ,, ,, | W. A. Ryan. |
| ,, ,, | W. G. Watt. |
| ,, ,, | M. B. Hay. |
| ,, ,, | A. Ingram. |
| ,, ,, | A. Connal. |
| ,, ,, | K. B. Allan. |
| ,, ,, | B. Knowles. |
| ,, ,, | A. J. R. O'Brien. |
| ,, ,, | J. B. Alexander. |
| ,, ,, | C. L. Ievers. |
| ,, ,, | M. Graves. |
| ,, ,, | F. G. Thompson. |
| ,, ,, | D. J. F. O'Donoghue. |

* Medical Officer of Health.

## EUROPEAN NURSING STAFF ON 31ST DECEMBER, 1912.

| | |
|---|---|
| Senior Nurse | Jessie Oram. |
| ,, ,, | E. F. Dunne. |
| Nurse | S. Adair. |
| ,, | M. M. Stanton. |
| ,, | M. M. Hall. |
| ,, | A. M. Page. |
| ,, | I. Wilson. |

## PRINCIPAL MEMBERS OF SUBORDINATE STAFF.

### PRINCIPAL MEDICAL OFFICER.

| | |
|---|---|
| First Grade Clerk | S. G. Ricketts. |
| Second Grade Clerk | G. B. Palmer. |
| ,, ,, ,, | Vacant. |
| Third ,, ,, | J. S. Sackey. |
| Fifth ,, Clerks | Two. |
| Temporary Clerk | One. |
| Messenger | One. |

### DISPENSING STAFF.

| | |
|---|---|
| First Class Dispenser | John Cato. |
| ,, ,, ,, | F. W. C. Wulff. |
| Second ,, Dispensers | Two. |
| Third ,, ,, | Six. |
| Fourth ,, ,, | Eight. |
| Dispenser Pupils | Eighteen. |

### NURSING STAFF.

| | |
|---|---|
| First Class Dressers | Nine |
| Second ,, ,, | Seventeen. |
| Native Nurses | Four. |
| Third Class Dressers | Twenty-two. |

### MEDICAL STORE.

| | |
|---|---|
| Storekeeper | H. D. Laryea. |
| ,, (Ashanti) | D. B. Odonkor. |
| Third Grade Clerk | G. W. Gilbert. |

### LUNATIC ASYLUM.

| | |
|---|---|
| Chief Warder | J. W. Ephraim. |
| Asst. ,, | T. W. Tagoe. |
| Keepers | Four. |
| Matron | One. |
| Gatekeeper | One. |

### PRINCIPAL CHANGES.

Mr. J. A. Brown, Second Grade Clerk, Principal Medical Office, died.
Mr. Gershon Quansah, Third Grade Clerk, retired on pension.
Mr. J. S. Sackey, appointed Third Grade Clerk, Principal Medical Office.
Mr. G. W. Gilbert, appointed Third Grade Clerk, for Medical Store.
Mr. G. W. Mensah, Third Grade Clerk, Medical Store, resigned.

## Statements of Expenditure in the Year under Sub-heads as compared with the Estimates.

| Medical-Head 15. | Estimates, 1912. | Actual Expenditure. | | |
|---|---|---|---|---|
| | £ | £ | s. | d. |
| Personal Emoluments ... ... ... ... ... ... | 38,683 | 35,873 | 2 | 5 |
| OTHER CHARGES. | | | | |
| Diet and Provisions ... ... ... ... ... ... | 3,500 | 2,167 | 0 | 3 |
| Medical Comforts ... ... ... ... ... ... ... | 600 | 479 | 1 | 10 |
| Medicines and Chemicals ... ... ... ... ... ... | 1,300 | 1,109 | 7 | 11 |
| Medical Appliances and Druggist Sundries ... ... ... | 350 | 353 | 7 | 0 |
| Medical Library ... ... ... ... ... ... ... | 100 | 39 | 17 | 7 |
| Medical Assistance (Extra) ... ... ... ... ... | 130 | 105 | 7 | 7 |
| Surgical Instruments and Appliances ... ... ... ... | 350 | 305 | 5 | 10 |
| Meteorological Instruments ... ... ... ... ... | 100 | *Nil* | | |
| Disinfectants ... ... ... ... ... ... ... | 100 | 85 | 15 | 2 |
| Bedding and Hospital Equipment ... ... ... ... | 600 | 508 | 14 | 5 |
| Fuel and Light ... ... ... ... ... ... ... | 200 | 121 | 7 | 6 |
| Outfit Allowance to Medical Officers ... ... ... ... | 100 | 72 | 0 | 0 |
| Clothing for Attendants ... ... ... ... ... ... | 80 | 69 | 7 | 11 |
| Clothing for Lunatics ... ... ... ... ... ... | 30 | *Nil* | | |
| Medical Examination of Officers in England ... ... ... | 150 | 213 | 3 | 0 |
| Instruction at Tropical School ... ... ... ... ... | 500 | 930 | 15 | 4 |
| Typewriters, purchase and maintenance ... ... ... ... | 60 | 44 | 11 | 4 |
| Research Equipment ... ... ... ... ... ... | 286 | 289 | 17 | 2 |
| Scientific Research with respect to Tropical Diseases ... ... | 100 | *Nil* | | |
| Contribution towards Medical Research Institute, Lagos, salaries of Officers and maintenance ... ... ... | 460 | 460 | 0 | 0 |
| Contribution to Entomological Investigation in West Africa ... | 350 | 350 | 0 | 0 |
| Contribution to the Tropical Diseases Research Fund ... ... | 200 | 200 | 0 | 0 |
| Passages of Officers to and from the Colony ... ... ... | 3,000 | 2,083 | 19 | 0 |
| Passages of Officers Coastwise ... ... ... ... ... | 150 | 122 | 7 | 3 |
| Railway Fares and Freight ... ... ... ... ... | 140 | 350 | 17 | 4 |
| Personal Conveyance to Principal Medical Officer or Officer acting for him ... ... ... ... ... ... | 46 | 31 | 8 | 5 |
| Personal Conveyance to Deputy Principal Medical Officer or Officer acting for him ... ... ... ... ... | 36 | 3 | 9 | 2 |
| Transport Allowances to Medical Officers ... ... ... | 980 | 814 | 13 | 5 |
| Travelling Allowances ... ... ... ... ... ... | 450 | 462 | 8 | 3 |
| Hammockmen and Carriers ... ... ... ... ... | 600 | 583 | 18 | 9 |
| Freight on Stores by Steamer ... ... ... ... ... | 150 | 53 | 13 | 3 |
| Transport of Stores by Carriers ... ... ... ... ... | 50 | 16 | 18 | 1 |
| Entomological Equipment ... ... ... ... ... | 200 | 59 | 7 | 5 |
| Contingent Expenses ... ... ... ... ... ... | 15 | 9 | 9 | 11 |
| SLEEPING SICKNESS. | | | | |
| Passages of Officers to and from the Colony ... ... ... | 180 | 57 | 4 | 0 |
| Passages of Officers Coastwise ... ... ... ... ... | 20 | *Nil* | | |
| Hammockmen and Carriers ... ... ... ... ... | 1,480 | 813 | 6 | 7 |
| Travelling Allowances ... ... ... ... ... ... | 380 | 236 | 12 | 4 |
| Transport of Stores by Carriers ... ... ... ... ... | 10 | *Nil* | | |
| Rendering Building Fly-proof ... ... ... ... ... | 600 | 0 | 16 | 8 |
| Tools, Purchase of ... ... ... ... ... ... ... | 30 | 3 | 11 | 0 |
| Labourers ... ... ... ... ... ... ... ... | 2,000 | 1,631 | 11 | 1 |
| TOTAL ... ... ... ... ... ... | £58,846 | £51,113 | 14 | 2 |

# SANITARY REPORT, 1912.

## ADMINISTRATION.

The Sanitary Staff is constituted as follows :—

### EUROPEANS.

The Senior Sanitary Officer, £800 to £900 by £25, and £160 duty pay.
The Junior Sanitary Officer, £600 to £700 by £25, and £120 duty pay.
Three Medical Officers of Health £500 to £600 by £25, and £100 duty pay.
One European Sanitary Inspector, £300 to £350 by £10.
Three European Sanitary Inspectors, £250 to £300 by £10.

### NATIVE STAFF.

One Sanitary Superintendent, £200 to £250 by £10.
Two 1st Grade Sanitary Inspectors, £150 to £200 by £10.
Four 2nd Grade Sanitary Inspectors, £100 to £150 by £10.
Two 3rd Grade Sanitary Inspectors, £80 to £100 by £5.
Seven 4th Grade Sanitary Inspectors, £60 to £80 by £5.
Twenty-five 5th Grade Sanitary Inspectors, £40 to £60 by £5.
One Vaccinator, £200 to £250 by £10.
One Disinfector Mechanic, £80 to £100 by £5.
One Motor Mechanic, £36 per annum.

### CLERICAL STAFF.

One 1st Grade Clerk, £150 to £200 by £10.
Three 5th Grade Clerks £40 to £60 by £5.

Although the former 6th Grade of Sanitary Inspectors was abolished on the 1st of January, and provision made in the Estimates for twenty-five 5th Grade Sanitary Inspectors, at the close of the year this grade was ten below strength.

The Sanitary Estimates for the year totalled £38,955, an increase of £18,338 on those for 1911.

The chief items of expenditure were as follows :—

| | |
|---|---|
| Scavengers and labourers ... | £11,055 |
| Upkeep of Latrines ... ... | 1,200 |
| Dustbins, Tools, etc.... ... | 700 |
| Clearing Government Lands | 2,400 |
| Plague Preventive Measures | 250 |
| Yellow Fever Preventive Measures | 1,000 |

In addition to the above, under the vote for Public Works Extraordinary the sum of £52,300 (controlled by the Director of Public Works but expended in accordance with the Senior Sanitary Officer's recommendation), was set aside for the Sanitary Improvements at Accra, Seccondee and other Stations. Of this vote the sum of £41,963 9s. 10d. was expended.

### TRYPANOSOMIASIS.

Reference to Table I. shews that animals killed in the Public Slaughter-Houses were infected with Trypanosomiasis in the following proportions :—

| | |
|---|---|
| Cattle ... ... ... | 15·07 per cent. |
| Sheep ... ... ... | 3·75 „ „ |
| Goats ... ... ... | 1·13 „ „ |
| Pigs ... ... ... | 1·75 „ „ |

Animals so affected are usually in an advanced state of emaciation.

It is probable that animals being driven along the road in this condition attracted the attention of some untrained observer, and led to the alarmist reports that were sent home with reference to the quality of the meat offered for sale in the Public Markets.

## SLEEPING SICKNESS.

I am still of the opinion, which I have expressed several times before, that it is the duty of the Government to establish a Segregation Camp in a fly-free belt in Ashanti, and there make arrangements for the isolation and treatment of persons infected with this disease. To leave them in their native villages, a source of infection to others, to face a lingering and certain death, is both inhuman and impolitic.

I have no information as to the recent progress of this disease, but the reports of Doctors Kinghorn and Wade, quoted last year, pointed to one per cent. of the population of Ashanti being infected.

## YELLOW FEVER.

During the year the following cases of this disease were diagnosed :—

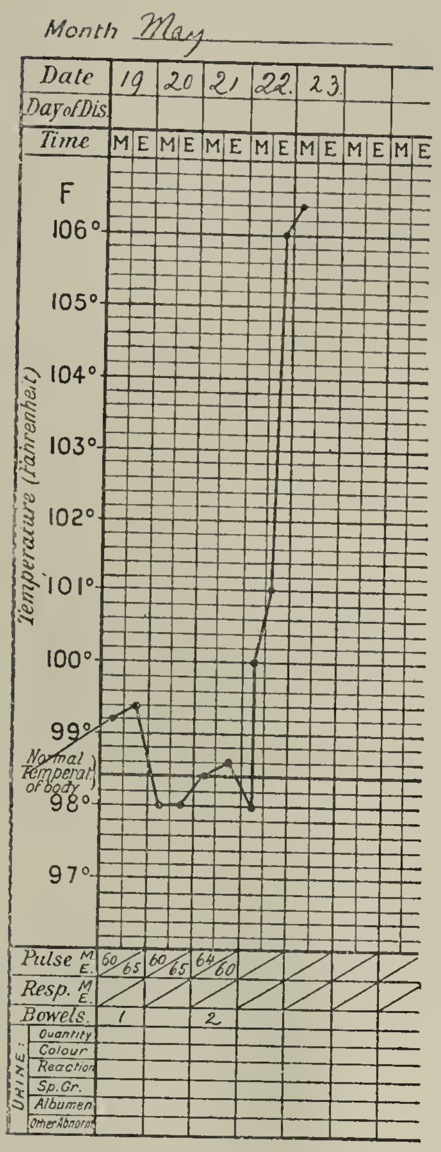
| Date. | Case. | Nationality. | Residence. | Result. |
|---|---|---|---|---|
| 17/5/12 | D. E. | European | Seccondee | Death |
| 2/6/12 | E. B. M. | do. | Christiansborg | do. |
| 12/6/12 | J. A. | Gold Coast | Accra | Recovery |
| 25/6/12 | P. H. | European | Christiansborg | Death |
| 19/7/12 | C. O. A. | Gold Coast | Labadi | Recovery |
| 28/7/12 | C. | do. | do. | do. |
| do. | O. | do. | do. | do. |
| do. | O. K. | do. | do. | do. |
| do. | A. | do. | do. | do. |
| 9/12/12 | H. C. | Kru-Coast | Axim | do. |

Below will be found the clinical notes of each case together with the post-mortem findings of those which terminated fatally :—

### CASE 66.

The following is the history of Mr. D. E.'s illness :—

> "On Friday morning, the 17th instant, about 9 o'clock, I was called to see Mr. E. at his quarters, he told me he had vomited twice during the night, having gone to bed the night before feeling well, but that he was then better and intended going out to his work after lunch. He had no fever and did not complain of pain anywhere, either in his head or stomach. His tongue was slightly dirty. A small dose of calomel and soda was given to him, and directions as to diet, with instructions to keep to his quarters that day. When I saw him next day he said he felt all right, but I noticed there was a slight conjunctival jaundice, and his urine contained bile, he had no more vomiting, nor did he complain of any headache, nor was there any fever, and he was still kept to his quarters. On the following morning (the 19th) jaundice was rather more marked, his stools clay-coloured, and bile in the urine in very marked quantity, no albumen, no headache complained of, no sickness or epigastric pain, and there was no fever; he was taken into Hospital that morning and the case diagnosed as Catarrhal Jaundice, during that day the temperature was taken every two hours and varied between 98·8 and 99·4, and he



was in a quiet state, taking all his nourishment of milk and barley water. During the 20th and 21st there was nothing special to note, he made urine in normal quantity, but with a large amount of bile in it, no albumen detected in it, the jaundice disappearing from the eyes and face, but becoming more marked over abdomen and legs; bowels costive, and when they acted the motions were clay-coloured. Temperature, taken every four hours, was always 98 to 98·4. Patient was quiet and made no complaint of any kind.

"On the afternoon of the 22nd, at 4 p.m. when the temperature was taken it showed 101, and the patient had got into a dull state, one hour afterwards it had run up to 106 and the patient had fallen into a comatose condition; no vomiting; the urine was drawn off by catheter, and for the first time a very slight trace of albumen was seen. The temperature was temporarily reduced by cold packing for a short time to 105, but it soon afterwards went up to 106·4, and remained about that until death at 5.30 the following morning (23rd), the patient remaining in an unconscious state all this time. Just at the moment of death there was a slight quantity of dark fluid came from the mouth. For some ten or twelve hours before death, the jaundiced appearance had passed away.

"Post-mortem examination was made by Dr. Dugon and myself, three and a half hours after death, and the appearance of the body was typical of Yellow Fever; its surface was all a deep yellow colour, with numerous patches of petechiæ, and very much so on the scrotum. The stomach contained about a pint of black fluid, with arborescent patches of congestion on its walls.

"The liver was about normal in size, and very pale yellow in colour, boxwood appearance on section, soft, friable and fatty.

"I would remark that the history of Mr. E's illness would appear to be inconsistent with a diagnosis of Yellow Fever until within twelve hours of his death. Mr. E. was at his work regularly until the day before he first complained of sickness, and had been constantly resident in Seccondee for the last two or three months, and lived in the commercial part of the town, with natives living about 50 yards from him. It was his first tour in West Africa."

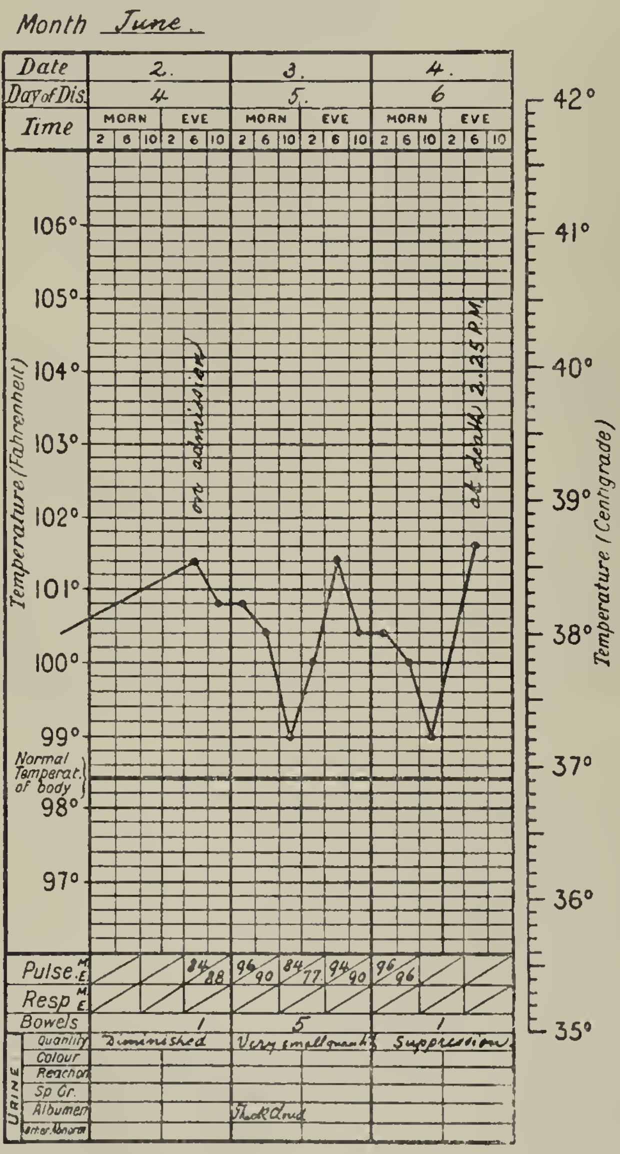
(Sgd.) C. B. HUNTER,
*Senior Medical Officer.*

SECCONDEE, 24*th May,* 1912.

## CASE 67.

### *Report on E. B. M.*

"I have the honour to forward you the following Medical Report on the death of Mr. E. B. M., Accra, which took place in the Hospital at 12.25 p.m., on the 4th instant, from Yellow Fever with suppression of urine.



"Has been on the Coast 10 months, and for the first time; has had one or two attacks of "Fever"; for last month has been living at Christiansborg, occasionally going to Nsawan for one to three days, was at Nsawan one day at the beginning of last week, his office and store is in Horse Road. He is 35 years of age. Admitted into Hospital at 5.45 p.m. on the 2nd instant. Complains of "fever" and weakness and feeling very tired; began on the afternoon of May 30th with headache and "fever"; on the 31st vomiting and looseness of bowels which has persisted since; eyes suffused and face red; looks worn out. Examination nil (except gall bladder, feels prominent), has not passed urine since morning, which he says then was all right in colour.

" *June 3rd* :—Passed a sleepless night, a little vomiting with minute dark shreds in it like " beef tea," some loose stools of mucus and water. There is now distinct tinging yellow of conjunctivæ, and slightly of whole body. Only three to four drops of urine passed, which gave a thick cloud with nitric acid ; bladder not felt. Face suffused and swollen, tongued coated on dorsum, red at edges and tip, not swollen. Blood-smear examination negative for malarial parasite.

" *June 4th* :—Undoubted black vomit during the night, still total suppression of urine, marked jaundice of conjunctivæ and body generally, a brownish yellow and not the saffron yellow of Blackwater Fever. Stools this morning contain similar black shreds as the vomit. Pulse weaker and quicker, no slowing of pulse noticed throughout, mind clear. Just before noon became unable to speak, gradually becoming comatose, radial pulse imperceptible, several twitchings of limbs, respiration ceased at 12.25 p.m. Axillary temperature at death 101·6.

" Post-mortem examination the same afternoon shewed general browning of body and organs. Liver fatty, spleen congested. Stomach much corrugated resembling convolutions of brain and containing a fluid full of dark coloured shreds, only a few ecchymoses seen, more marked at pylorus. Intestines shewed patches of ecchymoses. Kidneys congested, slightly bulging on section, capsule stripped readily. Bladder practically empty. Heart and lungs normal.

Dr. Connal's report on examination of blood and the vomit, I attach.

(Sgd.) J. A. CLOUGH,
*Senior Medical Officer.*

ACCRA, *5th June,* 1912.

" I have the honour to forward the results of the blood examination made on the patient, Mr. M., this morning.

| | | |
|---|---|---|
| " Red blood corpuscles | ... | 4,600,000 per cmm. |
| " White ,, ,, | ... | 5,750 ,, |
| " Differential leucocyte count. | | |
| " Polymorphonuclears | ... | 59·8 per cent. |
| " Lymphocytes ... | ... | 20 ,, |
| " Large Mononuclears | ... | 18·6 ,, |
| " Transitionals ... | ... | 1·6 ,, |

" No parasites and no pigmented mononuclears seen.

" The vomited matter contains blood corpuscles."

(Sgd.) A. CONNAL, M.O.

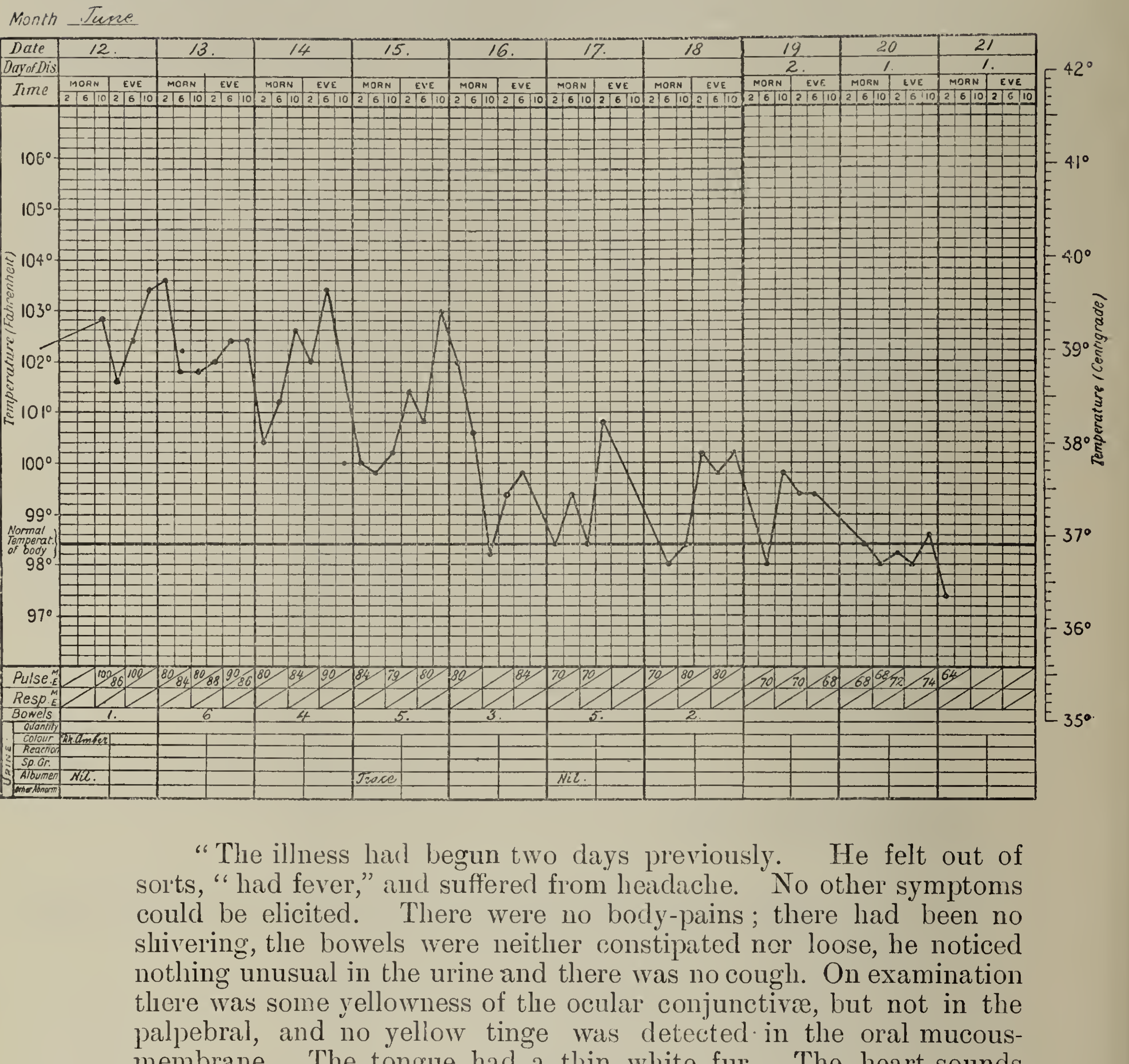
" THE LABORATORY,
ACCRA, *4th June,* 1912.

## CASE 68.

### *Report on J. A.*

" The patient, a telegraph clerk, age about 35 years, came to the outdoor department of the Hospital on the morning of 12th June,

1912. He complained of severe headache, thirst, loss of appetite and weakness. The temperature was found to be above normal and he was sent into the ward for observation. The accompanying chart shews the course of the fever.



"The illness had begun two days previously. He felt out of sorts, "had fever," and suffered from headache. No other symptoms could be elicited. There were no body-pains; there had been no shivering, the bowels were neither constipated nor loose, he noticed nothing unusual in the urine and there was no cough. On examination there was some yellowness of the ocular conjunctivæ, but not in the palpebral, and no yellow tinge was detected in the oral mucous-membrane. The tongue had a thin white fur. The heart-sounds were pure, the lungs were apparently normal and liver and spleen were not appreciably enlarged. The urine was rather dark amber in colour and was free from albumen. The blood was examined. No parasites were seen and no malarial pigment was observed. The differential leucocyte count was :—

| | |
|---|---|
| Polymorphonuclears ... | 71·2 per cent. |
| Lymphocytes ... ... | 11·6 ,, |
| Large Mononuclears ... | 12·0 ,, |
| Transitional cells ... | 5·2 ,, |

"He received mist. alba ℥ ii on the night of admission to Hospital and this was the only medicinal treatment he had during his stay.

"The diet consisted of milk and soda for the first two days. Thereafter he had tea, beef-tea and bread until 22nd June, when he went on to ordinary diet.

"The urine was not again examined until 15th June, when a distinct haze of albumen was found, by the heat test. The albuminuria had disappeared by 17th June.

"There was never any gastric disturbance during his stay n hospital, no nausea, vomiting or pain.

"The bowels moved regularly daily, and the colour of the stools was normal.

"The figures on the temperature chart show the relationship of the temperature to the pulse.

"The headache, which was always frontal, lasted until 19th June.

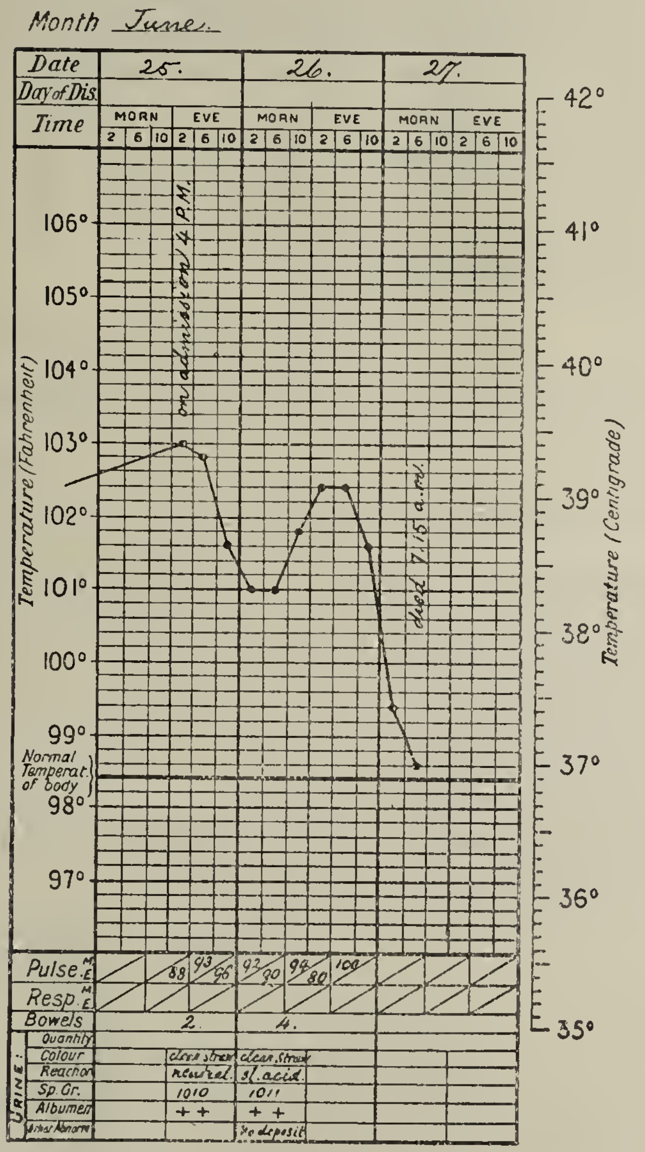
"I regarded the case as an attack of Yellow Fever."

(Sgd.) A. CONNAL, M.O."

## Case 69.

### *Report on P.H.*

"I have the honour to submit the following report upon Mr. P. H., aged 27 years, admitted into Hospital on 25th instant with Yellow Fever, and who died at 7.15 a.m., on the 27th instant.



"A well-nourished, stoutish, young German. Been on the Coast three months only and no previous tropical experience. The whole three months he has lived at the Basel Mission Workshops, Christiansborg, and not been out of Accra, except when segregated for a week at Government Lodge, from the 4th instant. The only other ailment he has had on the Coast is diarrhœa for three days, eight weeks ago. Has regularly taken quinine 0·8 gramme (12 grs.) every fourth day. Lived only two houses away from the last case of Yellow Fever (Mr. M.).

"On admission—says he is feeling all right, though temperature is 103, and pulse 88. Illness began on 22nd instant with a feeling of cold, and rather severe occipital and frontal headache, this latter lasted only for first two days. No pains elsewhere, constipated at first but bowels now well opened by purgatives, is passing urine freely, face not flushed, conjunctivæ markedly suffused and slightly tinged yellow, no anxious expression, no yellow tinging of skin generally, tongue slightly coated, reddish at edges (strawberry) and rather tipped. Vomited several times, for the first time he says during last night, a yellowish fluid. Other examination nil, except that he is rather deaf, which he says is due to the amount of quinine he has taken.

*Urine.*—Clear, straw colour, neutral 1010, very well marked cloud, also ring of albumen, no sugar, (says never had urethritis).

" *June* 26*th* : Did not sleep well during night, but well this morning early. Vomited once during night a tea-coloured fluid. Bowels opened several times, loose and pale in colour. Vomited again after 3 p.m., suspicious "black vomit" having a very few minute dark shreds of matter in it. Became suddenly semi-unconscious soon after, appeared to notice things but could not speak, was restless and picking at bedclothes, and peculiar slow movements of lips, breathing became more marked and quickened, pulse weaker and quicker. No more vomiting. He remained like this throughout the night, pulse getting weaker and breathing more prolonged, temperature in axilla gradually dropped, he died at 7.15 a.m. on the 27th instant.

" Post-mortem report and the report on examination of blood, both by Dr. Connal, attached."

(Sgd.) J. A. CLOUGH,
*Senior Medical Officer.*

"*Blood Examination—Mr. P. H. Taken* 25/6/12.

| | | |
|---|---|---|
| " Polymorphs ... ... | 86·4 | per cent. |
| " Lymphocytes ... ... | 7·2 | ,, |
| " Mononuclears ... ... | 3·6 | ,, |
| " Eosinophils ... ... | 1·6 | ,, |
| " Transitionals ... .. | 1·2 | ,, |

" No parasites.
" One pigmented Mononuclear found.
" Leucocytes 6,875 per c.mm."

(Sgd.) A. CONNAL.

" *Post-mortem Report.*

" Mr. H. died 27th June, 1912. Post-mortem 27th June.

" Faint greenish yellow staining of skin, especially on front of chest and inner aspect of thighs. Diffuse patchy punctiform post-mortem staining, neck, abdomen and other parts.

" *Lungs.*—Old adhesions of pleura both sides. No hypostatic congestion. Several caseating bronchial glands.

" *Heart.*—Rather pale. Muscle firm and well developed. Yellow staining of valves. No clots in cavities.

" *Liver.*—Somewhat less than average size, and appearing as if compressed antero-posteriorly, causing marked arching, colour pale. On section distinctly yellowish, the appearance being fatty-nutmeg. Friable.

"*Spleen.*—Not enlarged, but darkly congested, firm and friable.

"*Kidneys.*—Distinctly congested. Distinction between cortex and medulla lost, and decided œdematous appearance. Capsules easily stripped. No petechiæ or hæmorrhages.

"*Bladder* distended with amber coloured hazy urine.

"*Stomach.*—Small. Mucous-membrane thinned, except at pyloric end of greater curvature, where rugæ marked. At cardiac end of lesser curvature a large patch of sub-mucous hæmorrage, and a few smaller patches at pyloric end. Stomach contents, dark brown grumous material.

"*Small Intestine.*—A very marked sub-mucous hæmorrhagic condition present in the first 12 feet. Intestinal contents, black mucous material.

"Fat of abdominal wall markedly yellow on section.

"Urine, catheter specimen P.M.

"Centrifugalized deposit: Blood casts and bloods cells.

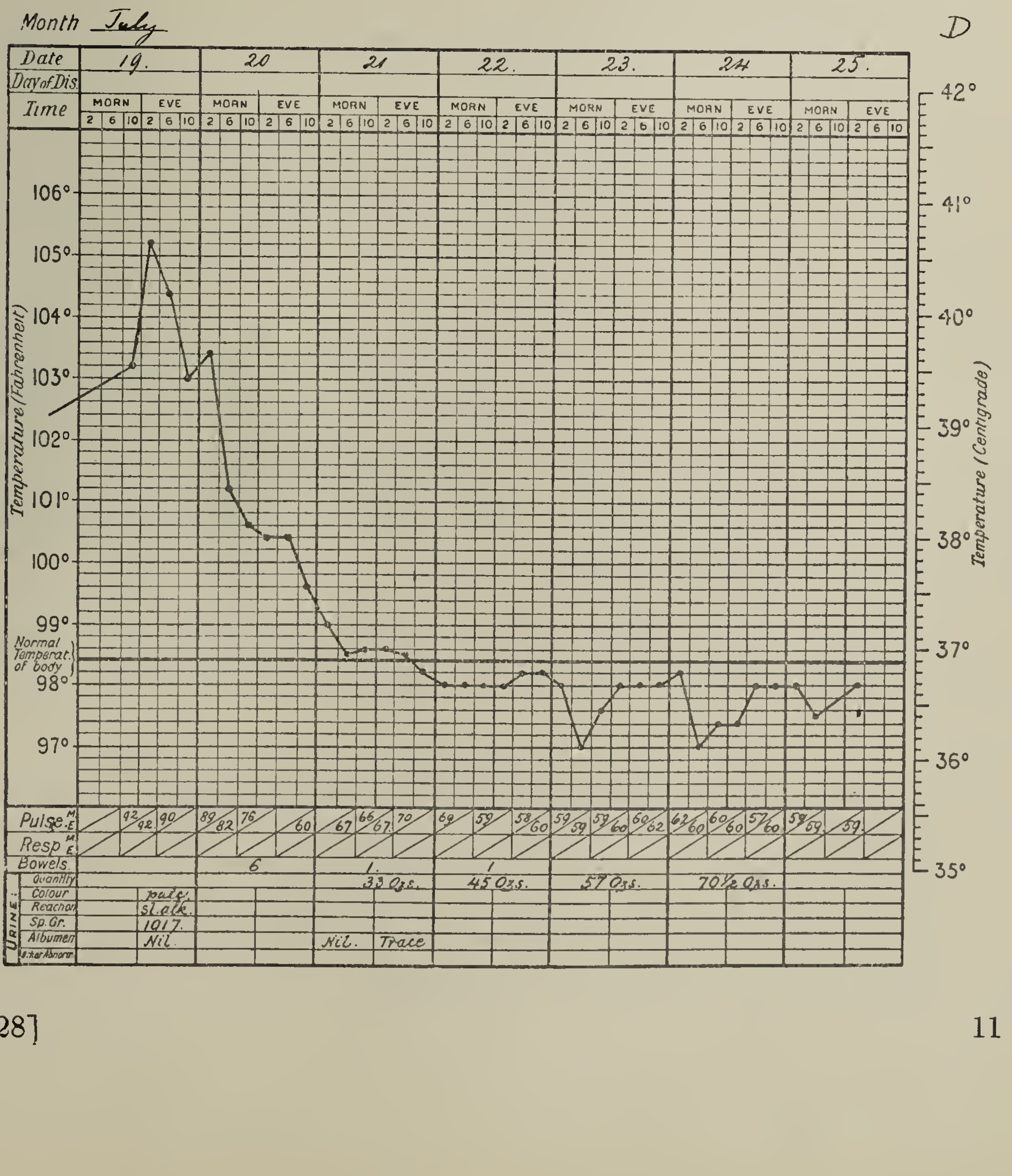
"Present at Post-mortem :—Drs. Tweedy, Clough, Müller, Beringer, A. J. R. O'Brien and Allan."

(Sgd.) A. CONNAL, M.O.

## CASE 70.

*Report on C. O. A.*

"I have the honour to bring before your notice a case which occurred in the Native Ward on the 19th and subsequent days of this month.



"The patient was a clerk in the Police Department, by name C. O. A., living in Kowe Street, at Labadi. He presented himself at out-patients on Friday, July 19th, and was then complaining of acute headache and pains in the back, he had had no vomiting and complained of nothing else, the temperature was 103·1° and the pulse rate 90.

He was admitted and a blood film was taken, the result of which was as follows :—

| | |
|---|---|
| Polymorphonuclear ... | 61·4 per cent. |
| Lymphocytes ... ... | 14·4 ,, |
| Large Mononuclears ... | 16·8 ,, |
| Eosinophils ... ... | 1·2 ,, |
| Transitional Cells ... | 5·8 ,, |
| Mast Cells ... ... | 0·4 ,, |

"There were no parasites or pigmental mononuclears present.

"On examination the patient appeared to be rather anxious and very excited when spoken to. The conjunctivæ were slightly tinged yellow, and the eye was very bright. The tongue had a small coating of white fur and was rather pointed, with the edges and tip quite clean and red, there were no petechial patches on the mucous-membrane of the mouth. Examination of the chest and abdomen proved negative, there was a small superficial boil on the scrotum, knee jerks present and no ankle clonus, there was no loss of sensation. He had never had any attacks of fever previously.

Urine passed at 1 p.m. pale in colour.
Specific gravity 1017.
Slightly alkaline.
No albumen.

"He was very constipated but the bowels acted freely after administration of mist. alba.

Later in the day the temperature rose to 105·2° whilst the pulse rate remained stationary, and the patient appeared to be very ill. He was cold-sponged and the temperature fell to 103° later falling to 100°. The yellowness of the conjunctivæ had increased, the condition of the tongue remained the same. The urine contained no albumen. The stools were very pale in colour.

"The following morning the temperature had risen to 103° whilst the pulse rate had fallen to 82. The condition of the patient was the same, no albumen in the morning or evening specimens. At night the pulse rate had fallen to 60 per minute and the temperature had dropped to normal. Next day, the 21st, the condition of the patient as regards yellowness of the eye and coated tongue was unaltered. The temperature had stayed normal or very slightly raised, and the pulse rate remained under 70. The urine in the morning contained no albumen, but at night there was a trace of albumen not given by the ring test but by boiling.

"On the 22nd the temperature remained normal or subnormal, whilst the pulse rate had dropped to 56 per minute. The urine contained a trace of albumen in the morning and evening specimens. The yellowness of the eyes was greatly decreased and the tongue had become much cleaner. Since then the patient has made an uninterupted recovery, there being no more albumen passed, and the temperature remaining normal or subnormal.

"During the whole case there has been no vomoting, and albumen did not appear in the urine until the 21st instant when there was only a trace. My suspicions as to its being a case of Yellow Fever were aroused. Dr. Clough saw the case with me and thought it suspicious. Dr. Connal saw the case on Saturday and he agreed as to its suspicious nature.

"On Sunday, the 21st, Dr. Rice very kindly came to see the case and pronounced it to be Yellow Fever. Dr. O'Brien also saw the case and agreed in the diagnosis.

"On the 25th the urine was examined by Dr. Connal and I attach his report :—

"Centrifugalised sediment.

"Scanty blood casts breaking up to become granular. Small groups of pus cells and a few epithelial cells of various kinds."

"During the whole case there have been no typical symptoms to go upon, but the high temperature, pain in the head, brightness and yellowness of the eyes, combined with a low pulse rate and the presence of albumen and casts in the urine, point, I think, to a mild case of Yellow Fever."

(Sgd.) PHILIP D. OAKLEY,
*Medical Officer.*

Colonial Hospital,
Accra, 29/7/12.

*Report of Cases at Labadi.*

"The attached tables refer to the inmates of a house at Labadi, from which a person reported suffering from Yellow Fever.

"It will be noticed that seven persons showed a rise of temperature on the 28th of July.

"A control was taken by going to another house about 200 yards away, and taking the temperature of the inmates there, who numbered 15. There was slight rise in one instance only.

"Considering these facts we thought further investigations would be of interest. Arrangements were made to take the temperature and examine the urine, blood and fæces of the members of the family. The results of these examinations are appended in tabular form.

"The four patients—Chochoe, Odoley, Okerchri and Appiah—presented symptoms and signs which seemed to point to some common infectious disease. We think that they were suffering from Yellow Fever. The others might have been. The symptoms we admit were not severe, but this may be due to some degree of immunity from previous infections of the same disease.

"The local conditions were ideal for the spread of Yellow Fever."

(Sgd.) A. CONNAL,
*Medical Officer in charge of Laboratory.*

(Sgd.) A. J. R. O'BRIEN,
*Medical Officer of Health.*

Accra, 13*th August*, 1912.

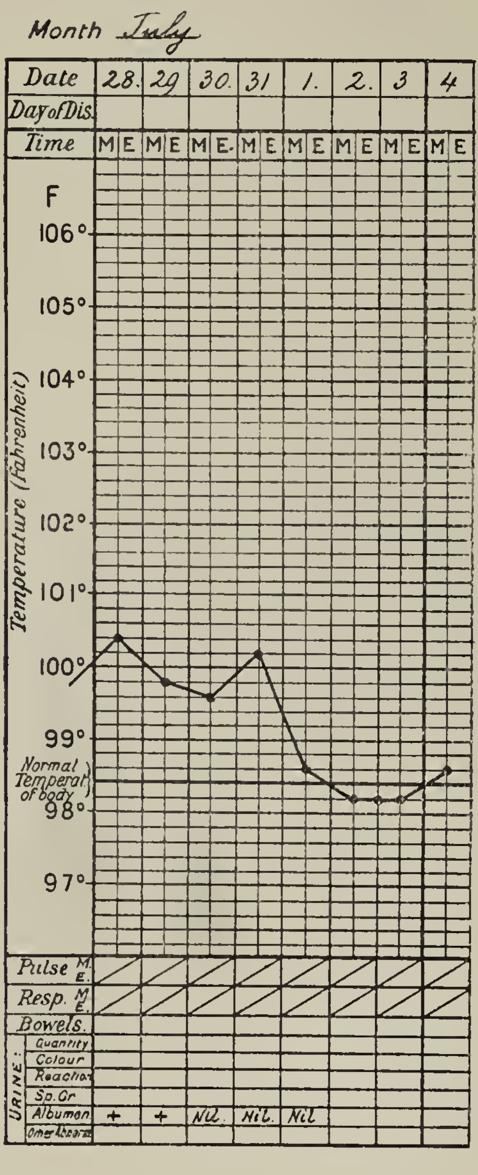
## CASE 71.—ANNAN.

| Date. | Temperature. | URINE. | | | BLOOD. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | Parasites. | |
| July 28 ... | 100·4 | Present | ... | ... | ... | Ova of Ascaris and Ankylostomes. |
| „ 29 ... | 99·8 | ... | Nil | Normal | ... | |
| „ 30 ... | 99·6 | Nil | Nil | ... | Nil and no pigment | |
| „ 31 ... | 100·2 | Nil | ... | ... | ... | |
| August 1 ... | 98·6 | Nil | ... | ... | ... | |
| „ 2 ... | 98·2 | ... | ... | ... | ... | |
| „ 3 ... | 98·2 | ... | ... | ... | ... | |
| „ 4 ... | 98·6 | ... | ... | ... | ... | |

No ova were found in the urine.

A differential leucocyte count gave the following result :—

| | | |
|---|---|---|
| Polymorphonuclears ... | 27·2 | per cent. |
| Lymphocytes ... ... | 27·0 | „ |
| Large mononuclears ... | 21·6 | „ |
| Eosinophiles ... ... | 9·4 | „ |
| Transitionals ... ... | 14·8 | „ |
| Mast cells ... ... | — | „ |
| | 100·0 | |



## Case 72.—CHOCHOE.

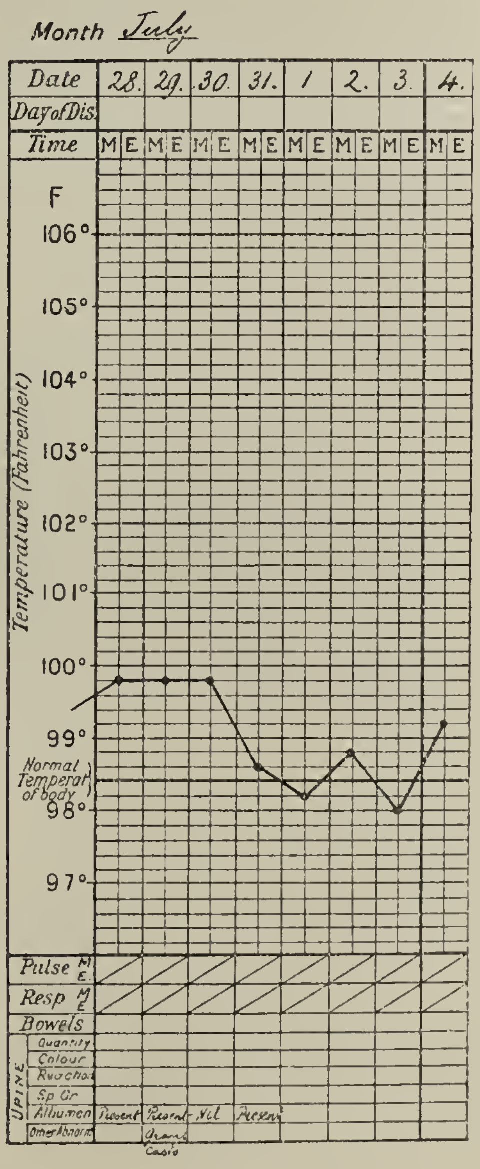
| Date. | Temperature. | Urine. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | Parasites. | |
| July 28 ... | 99·8 | Present | ... | ... | ... | Ova of Ascaris. |
| ,, 29 ... | 99·8 | Present | Granular | Diminished | ... | |
| ,, 30 ... | 99·8 | Nil | Nil | ... | No pigment | |
| ,, 31 ... | 98·6 | Present | ... | ... | ... | |
| August 1 ... | 98·2 | ... | ... | ... | ... | |
| ,, 2 ... | 98·8 | ... | ... | ... | ... | |
| ,, 3 ... | 98·0 | ... | ... | ... | ... | |
| ,, 4 ... | 99·2 | ... | ... | ... | ... | |

No ova were found in the urine.

A differential leucocyte count gave the following result:—

| | | |
|---|---|---|
| Polymorphonuclears ... | 26·2 | per cent. |
| Lymphocytes ... ... | 32·6 | ,, |
| Large mononuclears ... | 20·4 | ,, |
| Eosinophiles ... ... | 15·4 | ,, |
| Transitionals ... ... | 5·2 | ,, |
| Mast cells ... ... | 0·2 | ,, |
| | 100·0 | |

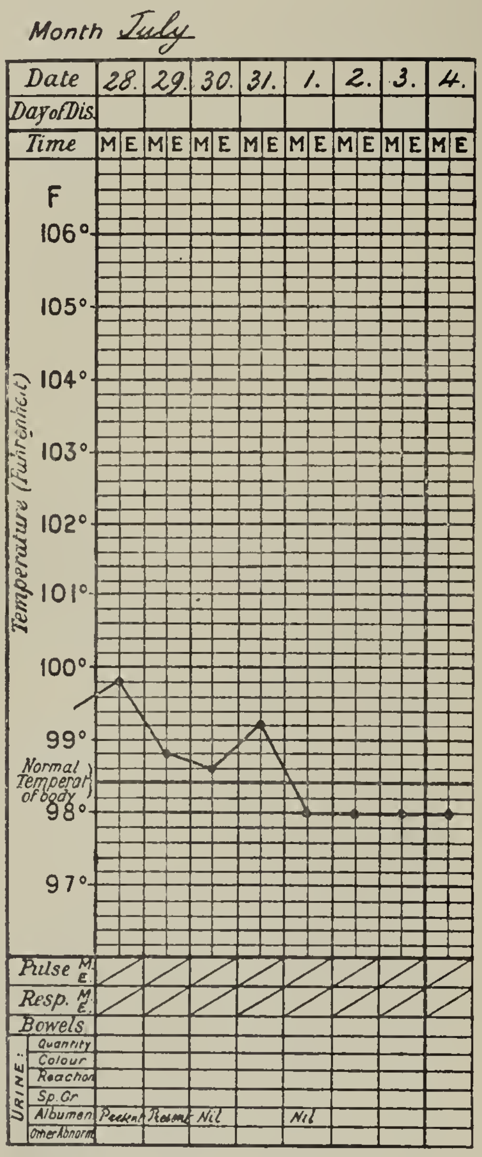
This patient was thought to be suffering from a mild form of Yellow Fever.



## CASE 73.—ODOLEY.

| Date. | Temperature. | Urine. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | | |
| July 28 ... | 99·8 | Present | ... | ... | ... | ... |
| ,, 29 ... | 98·8 | Present | Nil | Diminished | ... | ... |
| ,, 30 ... | 98·6 | Nil | Nil | ... | No pigment | .. |
| ,, 31 ... | 99·2 | ... | ... | ... | ... | No ova. |
| August 1 ... | 98·0 | Nil | ... | ... | | .. |
| ,, 2 ... | 98·0 | ... | ... | ... | ... | ... |
| ,, 3 ... | 98·0 | ... | ... | ... | ... | ... |
| ,, 4 ... | 98·0 | ... | ... | ... | ... | ... |

No ova were found in the urine.



## CASE 74.—OKERCHRI.

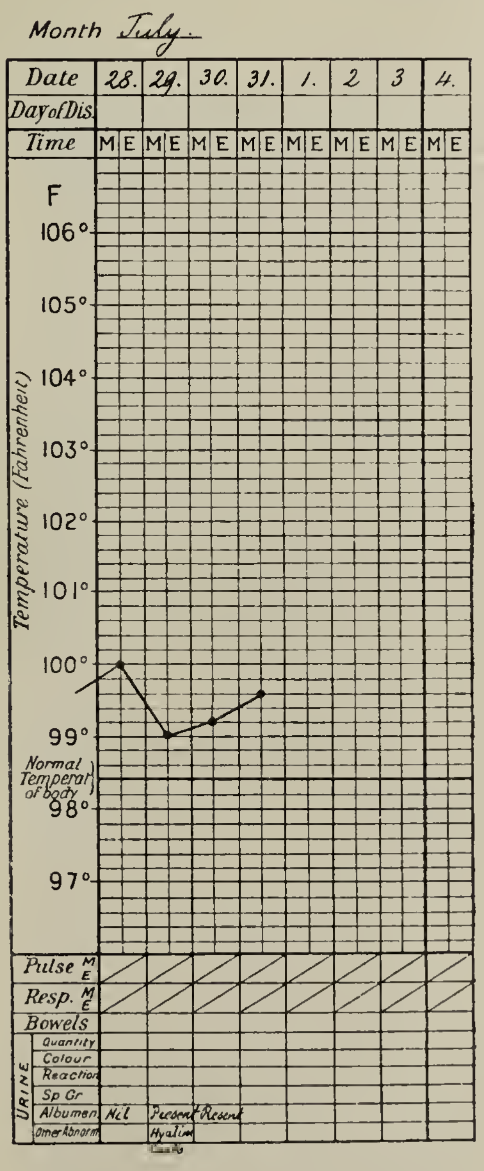
| Date. | Temperature. | Urine. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | | |
| July 28 ... | 100·0 | Nil | ... | ... | ... | ... |
| „ 29 ... | 99·0 | Present | Hyaline | Diminished | ... | ... |
| „ 30 ... | 99·2 | Present | Nil | ... | No pigment | ... |
| „ 31 ... | 99·6 | ... | .. | ... | ... | No ova. |

This patient was jaundiced on July 29th and 30th. The pulse rate varied between 60 and 64. He disappeared on August 1st.

No ova were found in the urine.

A differential leucocyte count gave the following result :—

| | | |
|---|---|---|
| Polymorphonuclears ... | 28·2 | per cent. |
| Lymphocytes ... ... | 38·0 | „ |
| Large mononuclears ... | 25·0 | „ |
| Eosinophiles ... ... | 3·4 | „ |
| Transitionals ... ... | 5·2 | „ |
| Mast cells ... ... | 0·2 | „ |
| | 100·0 | |



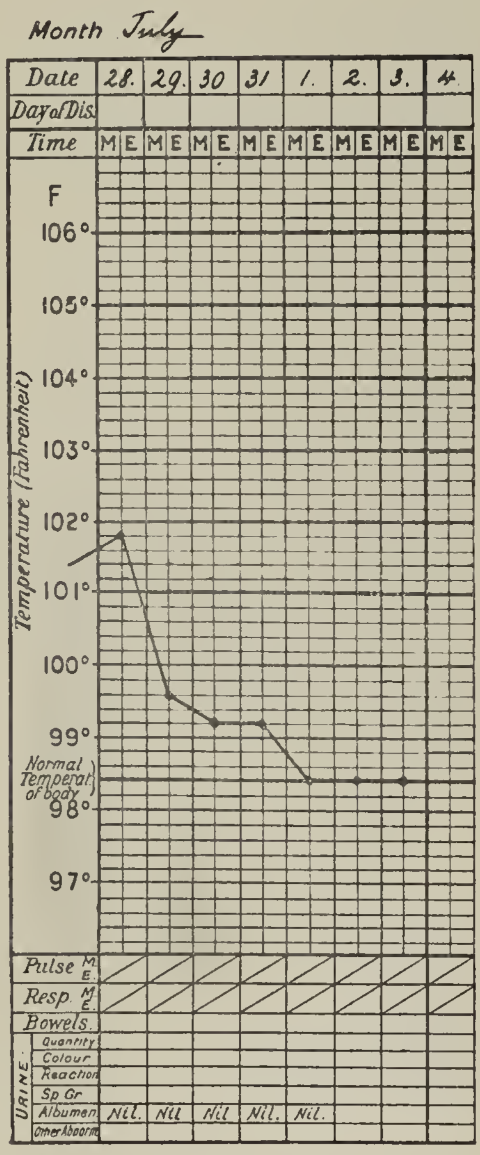
## CASE 75.—ODOI.

| Date. | Temperature. | URINE. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | | |
| July 28 ... | 101·8 | Nil | ... | ... | ... | ... |
| ,, 29 ... | 99·6 | Nil | Nil | Diminished | ... | ... |
| ,, 30 ... | 99·2 | Nil | Nil | ... | No pigment | ... |
| ,, 31 ... | 99·2 | Nil | ... | ... | ... | Ova of Ascaris. |
| August 1 ... | 98·4 | Nil | ... | ... | ... | ... |
| ,, 2 ... | 98·4 | ... | ... | ... | ... | ... |
| ,, 3 ... | 98·4 | ... | ... | ... | ... | ... |
| ,, 4 ... | ... | ... | ... | ... | ... | ... |
| | | | | | ... | |

No ova were found in the urine.

A differential leucocyte count gave the following result :—

| | | |
|---|---|---|
| Polymorphonuclears ... | 30·6 | per cent. |
| Lymphocytes ... ... | 38·8 | ,, |
| Large mononuclears ... | 14·4 | ,, |
| Eosinophiles ... ... | 9·6 | ,, |
| Transitionals ... ... | 6·2 | ,, |
| Mast cells ... ... ... | 0·4 | ,, |
| | 100·0 | |



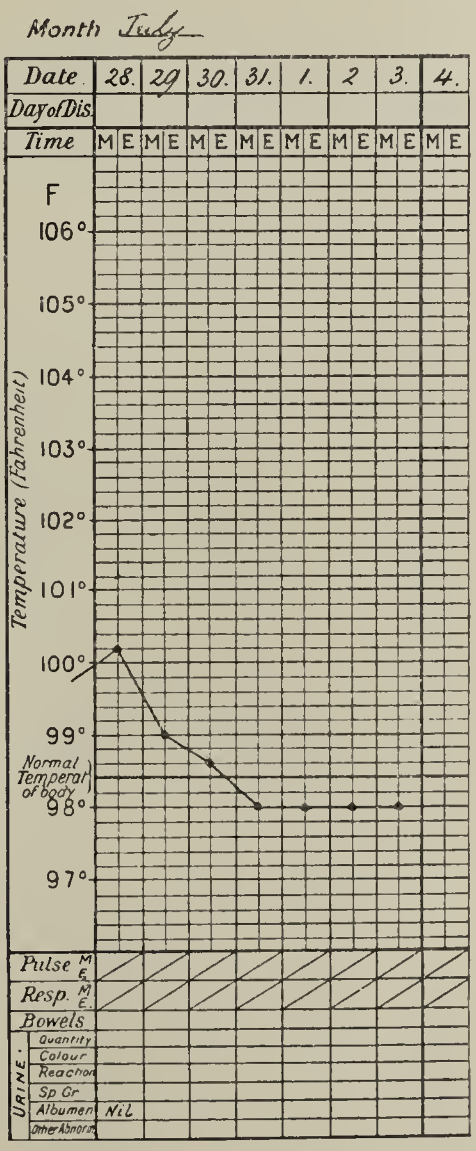
## CASE 76.—SOWAH.

| Date. | Temperature. | Urine. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | | |
| July 28 ... | 100·2 | Nil | ... | ... | ... | ... |
| „ 29 ... | 99·0 | ... | Nil | Not examined | ... | ... |
| „ 30 ... | 98·6 | ... | Nil | ... | Numerou malignant ertian ring | ... |
| „ 31 ... | 98·0 | ... | ... | ... | ... | No ova. |
| August 1 ... | 98·0 | ... | ... | ... | ... | ... |
| „ 2 ... | 98·0 | ... | ... | ... | ... | ... |
| „ 3 ... | 98·0 | ... | ... | ... | ... | ... |
| „ 4 ... | 98·0 | ... | ... | ... | ... | ... |

No ova were found in the urine.

A differential leucocyte count shewed :—

| | | |
|---|---|---|
| Polymorphonuclears ... | 17·2 | per cent. |
| Lymphocytes ... ... | 44·6 | „ |
| Large mononuclears ... | 22·0 | „ |
| Eosinophiles ... ... | 1·2 | „ |
| Transitionals ... ... | 14·8 | „ |
| Mast cells ... ... ... | 0·2 | „ |
| | 100·0 | |



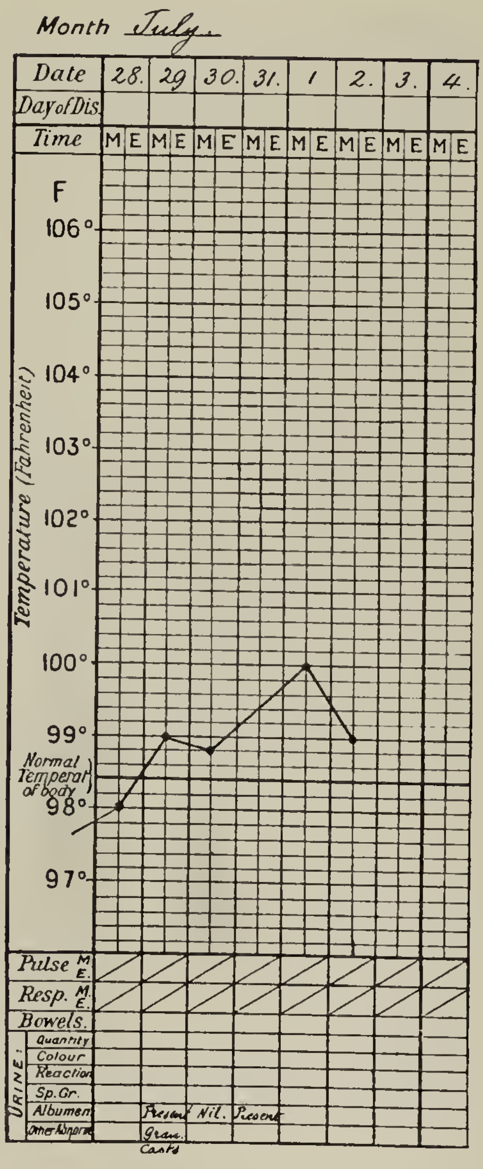
## CASE 77.—APPIAH.

| Date. | Temperature. | URINE. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | | |
| July 28 ... | 98·0 | ... | ... | ... | ... | ... |
| „ 29 ... | 99·0 | Present | Granular | Diminished | ... | ... |
| „ 30 ... | 98·8 | Nil | Nil | ... | No parasites<br>No pigment | ...<br>... |
| „ 31 ... | ... | Present | ... | ... | ... | Ova of Ascaris. |
| August 1 ... | 100·0 | ... | ... | ... | ... | ... |
| „ 2 ... | ... | ... | ... | ... | ... | ... |
| „ 3 ... | 99·0 | ... | ... | ... | ... | ... |
| „ 4 ... | ... | ... | ... | ... | ... | ... |

No ova were found in the urine.

A differential leucocyte count showed :—

| | | |
|---|---|---|
| Polymorphonuclears ... | 40·4 | per cent. |
| Lymphocytes ... ... | 30·8 | „ |
| Large mononuclears ... | 16·2 | „ |
| Eosinophiles ... ... | 4·2 | „ |
| Transitionals ... ... | 7·6 | „ |
| Mast cells ... ... ... | 0·8 | „ |
| | 100·0 | |



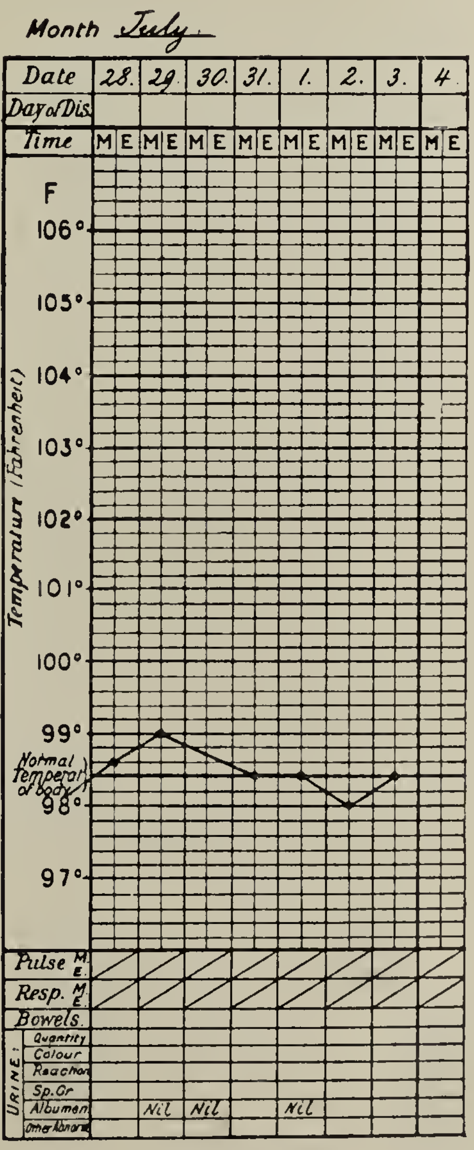
## Case 78.—MOJI.

| Date. | Temperature. | Urine. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | | |
| July 28 ... | 98·6 | ... | ... | ... | ... | ... |
| „ 29 ... | 99·0 | Nil | Nil | Diminished | ... | ... |
| „ 30 ... | ... | Nil | Nil | ... | No pigment | ... |
| „ 31 ... | 98·4 | ... | ... | ... | ... | Nil. |
| August 1 ... | 98·4 | Nil | ... | ... | ... | ... |
| „ 2 ... | 98·0 | ... | ... | ... | ... | ... |
| „ 3 ... | 98·4 | ... | ... | ... | ... | ... |
| „ 4 ... | ... | ... | ... | ... | ... | ... |

No ova were found in the urine.

A differential leucocyte count shewed :—

| | |
|---|---|
| Polymorphonuclears ... | 26·8 per cent. |
| Lymphocytes ... ... | 48·0 „ |
| Large mononuclears ... | 16·8 „ |
| Eosinophiles ... ... | 4·6 „ |
| Transitionals ... ... | 3·6 „ |
| Mast cells ... ... | 0·2 „ |
| | 100·0 |



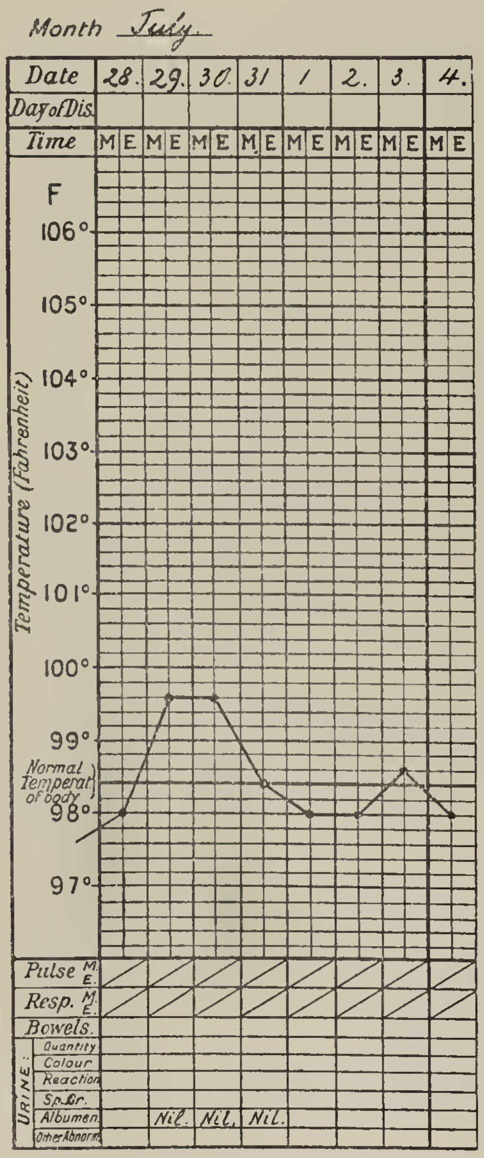
## Case 79.—YORKOR.

| Date. | Temperature. | Urine. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | | |
| July 28 ... | 98·0 | ... | ... | ... | ... | ... |
| ,, 29 ... | 99·6 | Nil | Nil | Diminished | ... | ... |
| ,, 30 ... | 99·6 | Nil | Nil | ... | No pigment | ... |
| ,, 31 ... | 98·4 | Nil | ... | ... | ... | Nil |
| August 1 ... | 98·0 | ... | ... | ... | ... | ... |
| ,, 2 ... | 98·0 | ... | ... | ... | ... | ... |
| ,, 3 ... | 98·6 | ... | ... | ... | ... | ... |
| ,, 4 ... | 98·0 | ... | ... | ... | ... | ... |

No ova were found in the urine.

A differential leucocyte count shewed :—

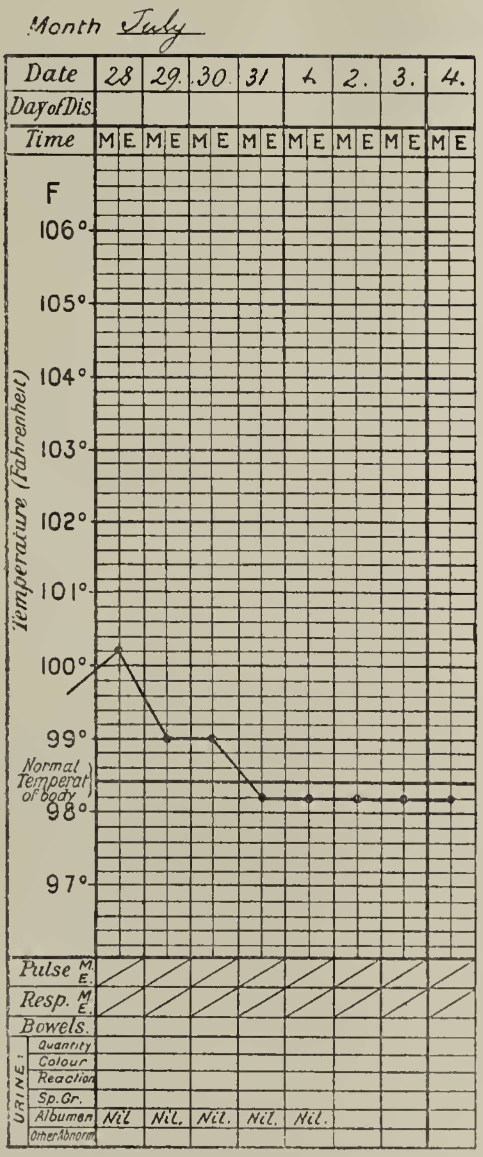
| | | |
|---|---|---|
| Polymorphonuclears ... | 32·0 | per cent. |
| Lymphocytes ... ... | 32·4 | ,, |
| Large mononuclears ... | 19·2 | ,, |
| Eosinophiles ... ... | 10·0 | ,, |
| Transitionals ... ... | 5·6 | ,, |
| Mast cells ... ... | 0·8 | ,, |
| | 100·0 | |



## CASE 80.—POBIE.

| Date. | Temperature. | Urine. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | | |
| July 28 ... | 100·2 | Nil | ... | ... | ... | ... |
| „ 29 ... | 99·0 | Nil | Nil | Diminished | ... | ... |
| „ 30 ... | 99·0 | Nil | Nil | ... | No pigment | ... |
| „ 31 ... | 98·2 | Nil | ... | ... | ... | Ova of Oxyuris. |
| August 1 ... | 98·2 | Nil | ... | ... | ... | ... |
| „ 2 ... | 98 2 | ... | ... | ... | ... | ... |
| „ 3 ... | 98·2 | ... | ... | ... | ... | ... |
| „ 4 ... | 98·2 | ... | ... | ... | ... | ... |

No ova were found in the urine.



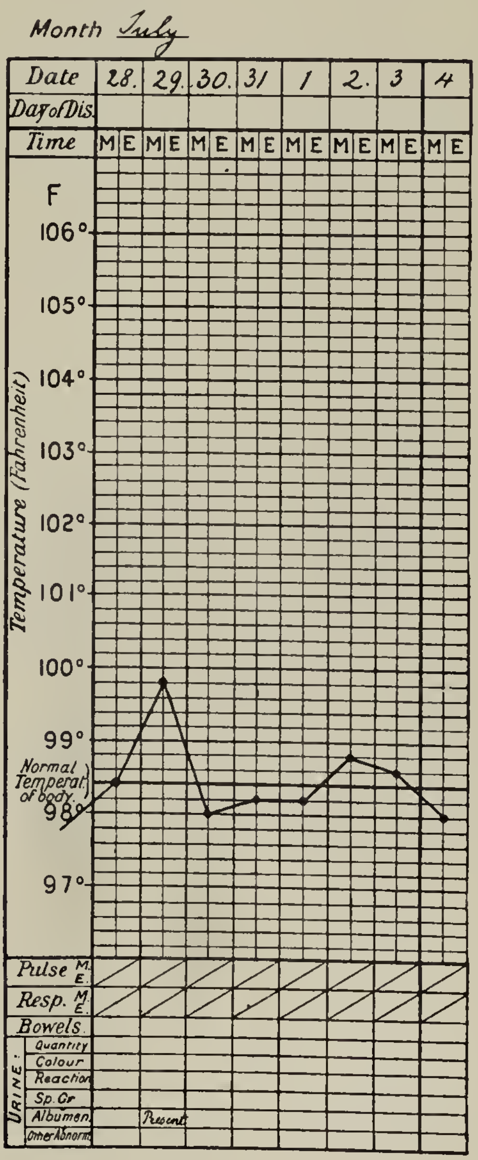
## CASE 81.—AMERLEY.

| Date. | Temperature. | Urine. | | | Blood. | Fæces. |
|---|---|---|---|---|---|---|
| | | Albumen. | Casts. | Urea. | | |
| July 28 ... | 98·4 | ... | ... | ... | ... | ... |
| „ 29 ... | 99·8 | Present | Nil | Diminished | ... | ... |
| „ 30 ... | 98·0 | ... | Nil | ... | No pigment | ... |
| „ 31 ... | 98·2 | ... | ... | ... | ... | Nil. |
| August 1 ... | 98·2 | ... | ... | ... | ... | ... |
| „ 2 ... | 98·8 | ... | ... | ... | ... | ... |
| „ 3 ... | 98·6 | ... | ... | ... | ... | ... |
| „ 4 ... | 98·0 | ... | ... | ... | ... | ... |

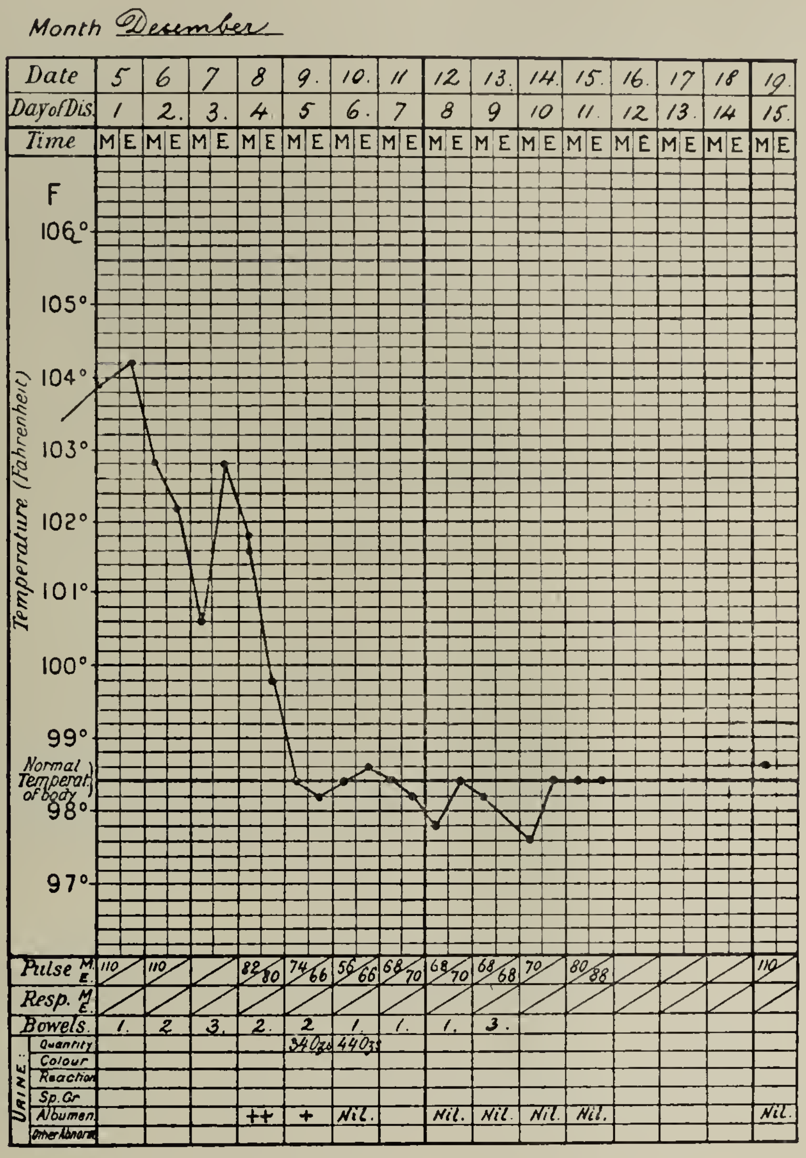
The ova of Bilharzia were found in the urine.

A differential leucocyte count shewed:—

| | |
|---|---|
| Polymorphonuclears ... | 38·4 per cent. |
| Lymphocytes ... ... | 26·8 „ |
| Large mononuclears ... | 20·6 „ |
| Eosinophiles ... ... | 4·2 „ |
| Transitionals ... ... | 9·4 „ |
| Mast cells ... ... | 0·6 „ |
| | 100·0 |



"*Name*: H. C. *Age*: About 35. *Sex*: Male.
"*Occupation*: P.W.D. Labourer.
"*Disease*: Yellow Fever. *Result*: Recovered.
"*Date of Admission*: 5th December, 1912.
"*Discharge*: 15th December, 1912.



"5/12/12.—Admitted suffering from prostration with pyrexia. Epigastric tenderness. Tongue moist, coated, flabby.

"6/12/12.—No change. Tenderness over abdomen, stools watery (like peasoup). Morning temperature 102·8. Pulse 110.

"8/12/12.—Pain over abdomen, epigastrium tender to pressure. Eyes moist and shining. Tongue moist, flabby, coated on dorsum, tip and edges clean. Temperature 101·8. Pulse 82. Urine loaded with albumen, forming copious deposit on standing. Prostration marked. Is taking food well. Has at no time complained of headache. No jaundice. Diagnosis: Yellow Fever.

"3.15 p.m.—Temperature 99·4, Pulse 77. Put on milk diet. Blood examined on 5th and 8th instant, no parasites of any kind found.

"9/12/12.—Temperature to-day normal. Tongue clearing. Sclerotic delicate lemon tint—icteric. Pulse at 9.15—75, at 11.30—60, at 3 p.m. varying from 75 to 80. Occasional intermission. Perspiring freely.

"Urine at 10 a.m., and at 3 p.m., shows a very faint opalescence on heating with acid.

"Patient is mentally a little confused, and at time does not realise what he is doing. He looks brighter.

"10/12/12.—Icteric tint of sclerotics more marked. Albumen nil. Tongue clearing. Feels much better. Temperature at 9 a.m., 98·6. Vessels of mucosa of gums and lips injected.

"11/12/12.—Urine was contaminated and not available for examination. Patient is much better. No deepening of icterus of sclerotics which was at no time very marked.

"13/12/12.—Sclerotics almost normal in appearance. Patient looks well and seems to have completely recovered. He is being detained in Hospital pending the arrival of the Acting Senior Sanitary Officer.

"15/12/12.—Patient seen this morning at 9.45 a.m. by Acting Senior Sanitary Officer and Dr. Connal. Temperature 98·9. Pulse varies from 80 to 88, occasionally intermittent. The sclerotics have still a distinct yellow colouring. There is still some injection of vessels of mucosa of gums and lips; this may be partly attributed to a slight chronic inflammation of the gums. Patient has lost flesh during his illness.

"He is discharged recovered."

(Signed) G. E. H. Le FANU,
*Medical Officer.*

"19/12/12.—The patient has been seen daily since his discharge from Hospital. His pulse has become rapid, irregular and intermittent, and averages 110, reaching and sometimes exceeding 120. His temperature has remained normal—to-day 98·6. Spleen has been normal in dimension throughout his illness. The patient has become much thinner.

"23/12/12.—Patient has not been seen since last note, when he left the Hospital on the 19th, he left his cap and singlet behind. He has not claimed them, and cannot be traced. Latterly, while still under observation, he seemed to grow suspicious, possibly having become alarmed at the great attention paid to him."

(Intd.) G. E. H. Le FANU.

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I am aware that opinions will differ as to the diagnosis of the mild attacks reported amongst the natives, but I submit that in a country in which *Stegomyia* mosquitoes abound and Yellow Fever is endemic, febrile conditions in natives accompanied by Faget's symptom, albuminuria, casts in the urine and jaundice, are, when Malaria has been excluded by a proper examination of the blood, in all probability Yellow Fever.

There is, however, one fallacy to be guarded against. It is customary when a Native is admitted into Hospital, suffering from a febrile condition for which there is no apparent cause, to place him, before a blood examination has been made, under the influence of quinine by administering ten grains of the drug three times a day. Professor Mitchell Bruce, on pages 316 and 317 of his work on "Materia Medica and Therapeutics," makes the following observations on the action of quinine:—"Full doses diminish the force and frequency of systole, lengthen diastole, and lower the pressure; effects due to a direct action on the cardiac ganglia and muscle, and on the vessel walls and their centre. In passing through the urinary organs it is slightly diuretic, and may irritate the passages."

It will be seen, therefore, that quinine administered in full doses may produce two of the pathognomonic symptoms of Yellow Fever, Faget's sign and albuminuria; and in order that the differential diagnosis may not be obscured it should not be given until a microscopical examination of the blood has afforded evidence of Malaria.

In the Second Review of Recent Advances in Tropical Medicine (Wellcome Tropical Research Laboratories) the following passage on quinine in Yellow Fever occurs:—"Clinically there is often the greatest difficulty in saying whether a case is Malaria—especially after quinine has been taken—or Yellow Fever."

The fact that Yellow Fever often assumes a mild form even in the non-immune, is too often lost sight of, and the disease is pictured as having for its characteristic symptoms intense jaundice, albuminuria, suppression of urine and black-vomit, ending usually in death. This picture is misleading as it is only typical of malignant cases, which judging from the experience of New Orleans in 1905 should not be more than 13 per cent. It would be as reasonable to state that Typhoid Fever is a disease invariably accompanied by perforation of the intestine and hæmorrhage, as to refuse to diagnose Yellow Fever, as is so often the case, unless the disease falls into line with the above description of it.

Recently I have had an opportunity of perusing some of the Annual Medical and Sanitary Reports from the year 1886 to the present time, and the following extracts are not without interest with reference to the endemicity of Yellow Fever:—

"(1) Years 1886–87.

> "Amongst the Europeans the fever was generally of the remittent type and the severe cases were attended with black vomit and albuminous urine."
>
> "The native suffered from a milder form of remittent fever as well as from intermittent fever."

* * * *

Public Health.

> "The specific poison which emanates from the soil that we have by mutual consent designated 'malaria' and as Sir Joseph Fayrer remarks 'is best known by its results, is the cause of almost all European mortality . . .'"

* * * *

"(2) 1892.

> "The fact that the Lagoon has been unusually full during the latter half of the year would appear to account for the comparatively good health enjoyed by Europeans during that period, as all deaths and cases of invaliding occurred during the period from January to June."

"(3) 1st Half of 1893.

> "At Cape Coast during the first quarter two Europeans died and one was invalided, although the percentage of sickness was not great. In the second quarter, however, the European sick rate was very high and almost all the resident European population suffered from severe forms of Remittent Fever; two deaths occurred from Malarial remittent fever and two were invalided."

"(4) 1st Half of 1893, *continued*—Elmina.

> " . . . . . . . . . The general health could 'not have been more unsatisfactory; one official began to suffer from malarial debility until removed to Aburi, four of the five traders exhibited grave and complicated forms of fever, and the

missionaries generally suffered from anæmia and intermittent and remittent fevers. The prevalent diseases were Remittent Fever of a serious type, Intermittent Fever, Diarrhœa, Dysentery, Congestion of the Liver and Malarial Anæmia.' Two deaths occurred and two were invalided."

"(5) 1st Half of 1893, *continued*—Elmina.

"20 b. Elmina. During the first quarter the 'prolonged dryness with heavy dews and mists at night which gave sufficient moisture to promote the malarial contagion. The proximity of the lagoon Banyea, the long mud flats of which are exposed by the receding tide, and from which rises a sickening miasmatic odour.'

"48. It is at the edges of this Lagoon that the malarial organism finds its permanent nidus whereas its pabulum is largely derived from the periodically exposed bed of the Lagoon, the stench from which is at times most overpowering."

* * * *

"(6) 1st Half of 1893, *continued*—Quittah.

"52. The experience we have had at Quittah is very instructive in regard to the practical solution of the difficulty as regards the River Bayan. In Quittah it has been found that so long as the lagoon keeps full a fair condition of general health is experienced, but the moment the lagoon begins to recede and until it has receded to its lowest limit, the converse obtains—also that general health is almost as good when the lagoon is at its lowest level as when at its highest —in short that it is to the putrefactive processes going on while the muddy banks of the lagoon are exposed that the unhealthiness of that station is due—cover up the mud banks with water or desiccate the mud by prolonged exposure to the sun and the source of disease is at once favourably modified."

* * * *

"(8) Annual Report for 1893, *continued*.

"48. The special feature of the fevers of malarial origin which occurred during the year was the tendency to hyperpyrexia and liver complications with marked prostration during convalescence. Assuming a bilious intermittent form in most cases they yielded readily to treatment when begun early but if neglected at the outset rapidly assumed a bilious remittent form with uncontrollable vomiting, hyperpyrexia and collapse. In other cases the disease assumed a malignant remittent form from the outset the patients dying almost suddenly in two or three days from hyperpyrexia and heart failure."

* * * *

"(9) Annual Report for 1894.

"In Accra, the general health of Europeans was fairly good, except during the last two months of the year, when there were several cases of a severe type of remittent fever.

"2. At Ada. Two cases of malignant remittent fever occurred among the non-officials, with one death."

* * * *

"5. During the third quarter, the general health of both Europeans and Natives was "excellent" although one serious, but non-fatal, case of Black-water fever occurred among the latter."

* * * *

> "15. Elmina. November and December proved very trying to Europeans, all Officials with one exception were taken ill with fever, and with four exceptions all the non-officials. That is to say, that out of a total population of 17, 12 suffered more or less severely."

* * * *

"(10) ANNUAL REPORT, 1900.

* * * *

> "The improvement in the health is, in some measure, due to the more careful and regular methods of life, which, I am glad to say, are yearly receiving more attention ; and also to the meteorological conditions, the rainfall generally having been above the average, and the temperature somewhat below it."

* * * *

"METEOROLOGICAL CONDITIONS.

> "The only special points to notice are the low temperature, and the unusually heavy rainfall ; to these may to some extent be attributed the general good health of the Colony."

From the above extracts going back to the year 1886, six years after Laveran's discovery of the malarial parasite and extending over several year's of the Pre-Mosquito period, it will be seen that it was customary to ascribe most febrile conditions to Malaria, and to distinguish them as Remittent and Intermittent Fevers.

There is nothing in the records to shew that the diagnosis was ever confirmed by a microscopical examination, and, judging from the conditions that obtained when I first came to the Coast (1897) I doubt whether there was a microscope in the Colony during the period referred to.

There can be little doubt that many of the febrile conditions referred to were Yellow Fever, and indeed the extract quoted from the report for the years 1886-87 is practically a description of the disease.

Then again attention is called to the fact that the majority of cases of sickness and death occurred during the dry months of the year—the first quarter, the first half of the second quarter and the latter half of the fourth quarter—and this is explained as being due to the mud exposed by the drying up of the Lagoon as in extract (5):

> "It is at the edges of this Lagoon that the malarial organism finds its permanent nidus whereas its pabulum is largely derived from the periodically exposed bed of the Lagoon."

It must be remembered that evidently Laveran's discovery of the malarial parasite had not yet penetrated to the Coast, the mosquito-theory was unknown and the Medical Officers were still in search of the "nidus" and "pabulum," which together constituted the malarial miasma to escape which bungalows were erected at an elevation above the surface of the soil.

It was an undoubted fact that during periods of drought, when the muddy banks of lagoons were exposed, many cases of sickness and death occurred, and it was not unnatural to ascribe the latter circumstance to the former.

Such conditions, however, are unfavourable to Malaria, since Anopheles have been described as "Pool Mosquitoes," and pools dry up during a drought; the main body of the lagoon would be more favourable to the breeding of large mosquitoes such as Mansoniodes, but when the lagoons are low, drinking water is scarce, every drop of it is hoarded, domestic utensils are not cleansed and *Stegomyia* mosquitoes are bred in enormous numbers, in short the conditions are favourable to the spread of Yellow Fever rather than Malaria.

With reference to the increasing number of cases of Yellow Fever notified during recent years it must not be assumed that the disease is any more prevalent, but rather that the notification fear is disappearing and more modern methods of diagnosis are being adopted.

## GENERAL PREVENTIVE MEASURES TAKEN AGAINST YELLOW FEVER IN 1912.

Apart from the special prophylactic schemes adopted on the occasion of each outbreak, the following general precautions were instituted :—

| | | | |
|---|---|---|---|
| 1. | Number of European Houses during the year wholly mosquito-protected ... ... ... | | 1 |
| 2. | Number of European Houses during the year partially mosquito-protected ... ... ... | | 4 |
| 3. | Number of Public Wells... ... ... ... | | 55 |
| 4. | Number of Public Wells mosquito-proof ... | | 33 |
| 5. | Number of Private Wells ... ... ... | | 942 |
| 6. | Number of Private Wells mosquito-proof ... | | 838 |
| 7. | Number of Public Tanks | Underground 51<br>Above ground 76 | 127 |
| 8. | Number of Public Tanks mosquito-proof | Underground 42<br>Above ground 76 | 118 |
| 9. | Number of Private Tanks | Underground 326<br>Above ground 955 | 1,281 |
| 10. | Number of Private Tanks mosquito-proof | Underground 301<br>Above ground 898 | 1,199 |
| 11. | Number of barrels... ... ... ... ... | | 3,075 |
| 12. | Number of barrels mosquito-proof ... ... | | 2,733 |
| 13. | Number of Tanks and barrels oiled ... ... | | 2,650 |
| 14. | Number of Inspectors employed... ... ... | | 35 |
| 15. | Number of Houses inspected ... ... ... | | 280,132 |
| 16. | Number of Houses where larvæ were found ... | | 2,464 |
| 17. | Number of notices served *re* larvæ ... ... | | 2,533 |
| 18. | Number of persons fined for having larvæ on premises ... ... ... ... ... ... | | 1,881 |
| 19. | Number of pools, wells, &c., stocked with fish ... ... ... ... ... ... | | 147 |

## FILARIASIS.

The official returns shew that 25 cases of this disease were treated in the Government hospitals and dispensaries and three deaths are attributed to this cause.

Again no effort appears to have been made to determine the percentage of the population infected.

The general measures against mosquitoes will, it is hoped, have diminished the number of the carriers of this disease.

## MALARIA.

According to the official returns 1,266 cases of this disease were treated in the Government hospitals and dispensaries and five deaths are recorded.

I have again, as last year, to point out that there is no evidence to shew in what percentage of the cases returned as Malaria the diagnosis was verified by a microscopical examination of the blood.

In a country in which so little is known about native febrile diseases this is to be regretted.

It has been well said "the term 'Malaria' has become in the tropics a kind of medical dustbin," into which all difficult cases of fever are cast without question or microscopical analysis. It takes the place of syphilis in colder climates."

There can, of course, be no doubt that a very large percentage of the native population is infected with Malaria as is shewn in the returns given on Table III., from which it will be seen that out of 7,365 children examined 3,405 suffered from enlarged spleens, and in 23·38 per cent of these cases Malarial parasites were demonstrated in the peripheral circulation. Nevertheless, in patients presenting themselves for treatment, when a diagnosis of Malaria is made, confirmation should be obtained by a microscopical examination of the blood.

At the 1912 Washington Conference considerable evidence was produced of the beneficial effects resulting from the distribution of State-aided quinine amongst native populations. I advise, therefore, that tabloids (each containing 3 grains of bi-hydrochlorate of quinine and 5 grains of sugar) be offered for sale at cost price at the Government Post Offices throughout the Colony and its Protectorates.

## MALARIAL PROPHYLAXIS.

In addition to the General Preventive Measures taken against Yellow Fever the following means have been adopted to combat Malaria :—

| | |
|---|---|
| 1. Lineal yards of concrete drains repaired or reconstructed ... ... ... ... ... | 3,141 |
| 2. Lineal yards of new concrete drains constructed | 17,612 |
| 3. Lineal yards of earth ditches dug ... ... | 22,190 |
| 4. Lineal yards of earth ditches cleaned ... ... | 467,066 |
| 5. Square yards of vegetation cleared ... | 15,458,005 |
| 6. Pools or excavations filled up ... ... ... | 594 |
| 7. Square yards of marsh land filled in and drained | 82,425 |
| 8. Drains oiled ... ... ... ... ... | 6,352 |
| 9. Pools oiled ... ... ... ... ... ... | 3,693 |

The sum of £11,055 was voted for scavengers and labourers who were employed in towns not under the Town Councils Ordinance, at the following Stations:—

### RETURN OF SCAVENGERS AND LABOURERS EMPLOYED BY THE SANITARY DEPARTMENT DURING THE YEAR 1912.

| Station. | Number. employed. | Remarks. |
|---|---|---|
| Aburi ... ... ... ... | 11 | At Accra, Cape Coast and Seccondee, scavengers and labourers were supplied by the Town Councils.<br>In addition, 82 men were, however, employed at Accra for mosquito-brigade work, and 4 men at the Accra Cantonments, and paid by the Government. |
| Accra ... ... ... ... | 86 | |
| Adawso ... ... ... ... | 11 | |
| Addah ... ... ... ... | 18 | |
| Akuse ... ... ... ... | 32 | |
| Annamaboe ... ... ... | 4 | |
| Appam ... ... ... ... | 11 | |
| Axim ... ... ... ... | 43 | |
| Cape Coast ... ... ... | — | |
| Chama ... ... ... ... | 6 | |
| Dixcove ... ... ... ... | 5 | |
| Dodowah ... ... ... ... | 15 | |
| Dunkwa ... ... .. ... | 11 | |
| Elmina ... ... ... ... | 13 | |
| Komfrodua ... ... ... | 7 | |
| Kpong ... ... ... ... | 5 | |
| Kwanyako ... ... ... | 6 | |
| Mampong ... ... ... ... | 6 | |
| Mangoase ... ... ... ... | 5 | |
| Nsaba ... ... ... ... | 6 | |
| Nsawam ... ... ... ... | 16 | |
| Nyakrom . ... ... ... | 6 | |
| Oblogo ... ... ... ... | 6 | |
| Odumase ... ... ... ... | 5 | |
| Pakro ... ... ... ... | 6 | |
| Pram Pram ... ... ... | 5 | |
| Prestea ... ... ... ... | 6 | |
| Quittah ... ... ... ... | 18 | |
| Saltpond ... ... ... ... | 37 | |
| Seccondee ... ... ... ... | — | |
| Soadru ... ... ... ... | 11 | |
| Somanya ... ... ... ... | 13 | |
| Tarquah ... ... ... ... | 53 | |
| Weshiang ... ... ... ... | 6 | |
| Winnebah ... ... ... | 38 | |
| Total ... ... ... | 527 | |

The majority of the above labourers were employed upon what is usually described as mosquito-brigade work, that is in removing any conditions likely to favour the breeding of mosquitoes.

### PLAGUE.

No case of this disease was reported during the year, nor were any of the rats examined at the Government Laboratory found to be infected.

Preventive measures have comprised efforts to destroy rats by trapping, and by poisoning with barium carbonate, but the results from the latter method have been disappointing.

Considerable progress has been made with the town planning schemes both at Accra and Seccondee, and these measures, taken in conjunction with the greater attention being paid to building construction all over the Colony, may also be included under the category of Plague Preventive Measures.

I am given to understand that Professor Simpson was unable to trace the origin of the 1908 outbreak of Plague in this Colony, or to find any evidence of the disease having previously existed here, but that it had occurred before is evident from the following extract from the Annual Medical and Sanitary Report for the Year 1892 :—

> "Towards the latter end of 1891, the first symptoms of Influenza were observed in the Colony, but as these so very closely resemble those of endemic malarial fever the presence of the epidemic disease amongst us was not readily recognised until it had attained a definite degree of development. It is difficult to trace accordingly the progress of the Epidemic in the Colony. At the beginning of the year under review, however, there was no difficulty in recognizing the disease which rapidly assumed a malignant type, due in a very great measure to the injudicious system of treatment adopted by the natives. So rapidly fatal and otherwise malignant proved the epidemic that a state of panic was induced amongst the natives. The Chief Medical Officer and myself addressed a public meeting in Accra convened for the purpose of warning the people against the pernicious system of cold ablutions in these cases. The natural history of the disease under the cold-water system was, according to my researches in Accra, as follows—1st day, malaise ; 2nd day, fever treated with cold baths ; 3rd day, fever with broncho-pneumonia treated also with cold baths ; 4th day, fever, double pneumonia treated also with cold baths ; death in the afternoon or evening. Still we failed at the time of our address to impress the natives with the fallacy of their treatment. One semi-educated person was known to have remarked with a great deal of presumption, 'We have always treated our fevers with cold water—our fathers did so before us—Why should we now do otherwise?' The sequel was I regret to say very sad for this individual. Two days after the address his sister fell ill of Influenza, he caused her to be freely bathed in cold water—she got worse and died in 3 days. On the day after his sister fell ill he was also attacked by the disease. He applied cold water freely and died the day after his sister. These cases produced a profound impression upon the natives, and the cold water system of treatment was practically abolished before the epidemic died away.

The disease described above as Influenza culminating in double-pneumonia and death on the 4th day must have been Pneumonic Plague, the determining factor in the fatal issue being the *Bacillus pestis* rather than the cold water treatment which invoked the censure of the Medical Authorities of the period.

### Vaccination and Small-Pox.

Twenty-three thousand, two hundred and thirty-two successful vaccinations were performed, but it cannot be said that as yet any efficient and organized attempt has been made to rid the Colony of Small-Pox. The disease is endemic and breaks out from time to time ; when it has assumed noticeable proportions or it is accidentally or otherwise brought to the notice of the Authorities, a Medical Officer is sent to the district to vaccinate and take other preventive measures ; and in the meantime, except in Ashanti, where a native Public Vaccinator is employed, and the Northern Territories, where these duties are performed by a Senior Sanitary Inspector, prophylaxis is confined to the vaccination of Government employees and prisoners.

It must be remembered that in this Colony Small-Pox is associated with magic and religion, moreover, the practice of inoculation is not uncommon.

The following is an epitome of some information given me by an educated and intelligent native with reference to the association of Small-Pox with Ju-Ju in Accra and its vicinity :—

> "The natives of Accra and the surrounding districts believe that the infection of Small-Pox is generally brought about as a result of

some disobedience of or annoyance caused to some Fetish or Ju-Ju. At Labadi (about 5 miles away) there is a Fetish called 'Akotia,' who is said, amongst other attributes, to be able to bring about Small-Pox. The deity does not entirely exist for bringing Small-Pox into towns, but has other powers to use when the occasion arises. The natives of Labadi when pronouncing a curse, often say 'I will send Akotia into your house to visit you,' implying thereby that 'I will send Small-Pox into your house to visit you.'

"It is also generally believed that Small-Pox is a Jinn in the form of a human being, small in stature and covered with sores, who is met with at lonely places at mid-day during the hot weather, and at times visits houses; if the Jinn is illtreated, scorned or reproached, the offending person will contract Small-Pox.

"Even when an infection is acquired by contact with a Small-Pox patient, it is believed that the victim's spirit has been subjected to the influence of the Jinn.

"When there is an epidemic of Small-Pox, or any other contagious disease, the women during the early hours of the morning gather together and shout appeasive cries, calling on the Ju-Ju by name to have mercy on them and their children. The women crowd together in procession through all the streets of the town to the out-skirts making loud out-cries in the belief that they are driving the disease out of the town, and at the same time they intercede with the Ju-Ju by sacrifice and otherwise.

"When a Medicine-man is called in to attend a case of Small-Pox, the Ju-Ju is first consulted to ascertain what wrong the patient has done towards the deity and to ask for forgiveness and mercy before treatment is commenced.

"The Ju-Ju 'Akotia of Labadi' is worshipped for other diseases as well as Small-Pox.

"The Medicine-man charges a consultation fee varying in value from a bottle of rum to half-a-crown before holding council with the Ju-Ju. Should it be found as the result of the consultation that "the patient's head is in the Ju-Ju," there must first be a sacrifice to appease the Ju-Ju, the cost of which sometimes amounts to the sum of £5 or more. By the expression "the patient's head is in the Ju-Ju," it is implied that another person has cursed him to the Ju-Ju, which is done by taking eggs and rum, calling upon the name of the Ju-Ju and pronouncing the curse; the eggs are then broken on the ground and rum poured over them. It is commonly believed that a person so cursed will fall sick and die."

"A Ju-Ju may be kept in a Grove, in an ante-room in a compound, or outside the compound as is done at Labadi, and is often represented by an image spotted here and there with white and red clay, placed beside an earthenware pot filled with roots, leaves and water into which rum is occasionally poured."

From the foregoing it will be seen that the belief that Small-Pox is due to the operations of evil spirits is wide-spread, and therefore, in dealing with such a delicate and far-reaching problem, it is necessary to provide not only an efficient substitute but one that will appeal to the mass of the population, and convince them that the "White-man's Ju-Ju" is stronger than their own. The natives would not be slow to discard their own gods when they realised that an efficient and more powerful deity was driving the scourge of Small-Pox from their villages.

I am convinced that a determined effort should be made to secure the efficient and systematic performance of Vaccination in a manner that will impress upon the natives the importance attached to it by the Administration. The subsequent disappearance of Small-Pox will afford evidence as to its efficacy.

I advise that a Medical Officer, assisted by educated and intelligent natives, be appointed as a Vaccination Officer to each Province. When, after a few years the bulk of the population has been efficiently vaccinated and the native taught to appreciate its value, the work can be carried on by the natives trained by the Vaccination Officers—subject to occasional European supervision.

### DYSENTERY.

Five hundred and forty-nine cases of this disease were treated in the Government hospitals and dispensaries and twenty-nine deaths were ascribed to this cause, but the statistics do not enable a distinction to be made between the amœbic and bacillary forms of the disease.

There is reason to believe that Dysentery is not only caused by drinking and eating food prepared with contaminated water, but also, to some extent, especially in children, by the common native custom of administering enemata of foul water. As will be seen elsewhere, efforts to combat the disease have taken the form of increasing and improving the latrine accommodation and protecting the water supply from pollution.

### ENTERIC FEVER.

Four cases were diagnosed, two ending fatally.

### HELMINTHIC DISEASES.

The official returns record the following cases :—

| | |
|---|---|
| Ankylostomiasis ... ... ... | 4 |
| Tæniasis ... ... ... ... | 8 |
| Bilhartziosis ... ... ... | 13 |
| Guinea Worm ... ... ... | 1,293 |

One death occurred from Ankylostomiasis.

Table No. IV. shews that out of 1,517 natives examined in the Government hospitals and prisons (863)—56·88 per cent.—harboured intestinal parasites, and it is interesting to note that the finding of the *Uncinaria Americana* is recorded at four Stations.

## GENERAL MEASURES.

As was the case last year, under the heading of Malaria and Yellow Fever, statistics have been given of the work done in the way of prophylaxis against both mosquito and water-borne diseases.

## OTHER MEASURES.

### *Sewage Disposal.*

In the principal towns pan latrines continue to be employed, and for public latrines a type-pan of a squatting latrine is being generally adopted.

Financial considerations preclude the employment of dry earth, but crude kerosene, which is now generally used, has done much to improve their condition. The number of pans, however, is far too small, and the latrines are too few in number. In the course of time, as the finances of the Colony permit of extension, such a system may prove to be adequate for the smaller communities, but in large towns such as Accra and Seccondee it will eventually be found more economical to introduce water-borne sewage systems.

Conservancy tables :—

| | |
|---|---|
| Number of public pan latrines ... ... ... | 359 |
| Number of new public latrines constructed during the year ... ... ... ... ... ... | 18 |
| Number of public pan latrines repaired and reconstructed during the year ... ... | 110 |
| Number of private latrines .. ... ... | 592 |
| Average daily number of pails of excreta trenched and buried ... ... ... ... ... | 626 |
| Average daily number of pails of excreta thrown into the sea ... ... ... ... ... | 1768 |

*Disposal of Refuse.*

| | |
|---|---|
| Number of dustbins ... ... ... ... ... | 193 |
| Number of destructors ... ... ... ... | 33 |
| Number of carts employed in removing refuse ... | 49 |
| Number of men employed in removing refuse ... | 224 |
| Average number of head-loads of refuse burnt daily | 1231 |
| Average number of head-loads of refuse buried and trenched daily ... ... ... ... ... | 56 |
| Average number of cartloads of refuse burnt daily | 186 |
| Average number of cartloads of refuse thrown into the sea daily ... ... ... ... ... | 91 |
| Average number of cartloads of refuse trenched and buried daily ... ... ... ... ... | 1 |
| Average number of head-loads of incombustible material removed from houses and compounds daily ... ... ... ... ... ... | 116 |
| Average number of cartloads of incombustible material removed from houses and compounds daily ... ... ... ... ... ... | 57 |

Table No. V. gives a return of proceedings instituted during the year, from which it will be seen that 5,912 prosecutions for sanitary offences took place, resulting in 5,677 convictions.

During the months of January and February the District Commissioner of Accra tried the experiment of inflicting fines amounting to £1 for larval offences, which eventually resulted in a disorderly demonstration at Government House by a number of women, who maintained there was no water that did not contain mosquito larvæ, and that they were being punished for what was virtually an act of God. It is doubtless true that some of the wells and most of the water-holes from which the natives derive their drinking water contain mosquito larvæ, but such insects are shy and alert, and the chance of their being captured in buckets plunged into wells, or in water baled out by natives standing knee-deep in the water-holes, is remote. Moreover larvæ so obtained would be few in number, and would probably not be observed by a Sanitary Inspector, and if seen, the explanation of the house-holder that they were in the water at the time of its procuring would be accepted, and no action taken beyond emptying out the water.

The enforcement of the provisions of the Mosquitoes Ordinance (under which fines up to the amount of £5 can be inflicted for larval offences) upon a superstitious and illiterate people must inevitably arouse hostility, especially when it is remembered that they are used largely against domestic mosquito larvæ found in tubs and chatties within their houses and compounds, to which the Sanitary Inspectors have the right of entry between the hours of 6 a.m. and 6 p.m. Moreover, the measures are directed against a disease, Yellow Fever, to which they are themselves comparatively immune, but which when mosquito-borne to the non-immune, may produce serious or even fatal results.

In the Canal Zone, where operations are confined to an area of 500 square miles and to an imported and disciplined population of about 50,000 workmen, with their wives and families, residing mostly in some 40 camps and villages near the line, and provided with pipe-borne water supplies, the domestic mosquito could be and has been exterminated, and I have no doubt that when the pipe-borne water supplies for Accra and Seccondee have arrived, equally satisfactory conditions will obtain in those two townships.

But, whilst not wishing to be unduly pessimistic, I doubt whether it will be possible to get rid of the domestic mosquito in other towns and villages unprovided with an adequate water supply.

We are doing it partially, and I sometimes wonder whether we may at the same time be gradually diminishing that amount of immunity which the native has previously enjoyed owing, in all probability, to repeated inoculation by infected mosquitoes.

Under such conditions I am convinced that segregation is the cheapest and only practicable solution of the problem.

## ENTOMOLOGICAL RETURNS.

The following blood-sucking Diptera have been described during the year by Medical Officers at various Stations :—

### COLONY.—

DUNKWA—(Dr. Tobit).

*Culex fatigans.*
*Stegomyia fasciata.*

Dr. Tobit states that the *Stegomyia fasciata* is the common mosquito at that Station.

ADDAH—(Dr. Palmer).

*Anopheles Costalis.*
*Stegomyia fasciata.*
*Mansonioides uniformis.*
*Culex tigripes var. fusca.*
*Anopheles* (*Nyssorhynchus, Cellia,*) *pharœnsis.*
*Culiciomyia nebulosa.*

CAPE COAST—(Doctors Beringer, G. E. H. Le Fanu and Dugon).

*Stegomyia fasciata.*
*Myzomyia funesta.*

ACCRA—(Dr. Connal).

*Anopheles costalis.*
*Stegomyia fasciata.*
*Culex decens.*
*Culex fatigans.*
*Culex tigripes.*
*Culex quasigelidus.*
*Culiciomyia nebulosa.*
*Mansonioides uniformis.*

The *Stegomyia fasciata* appears to be the common mosquito.

SECCONDEE—(Doctors Walkers, Fraser and McDouall).
*Stegomyia fasciata.*
*Culex fatigans.*
*Anopheles costalis.*
*Stegomyia simpsoni.*
*Pyr. Marshalli.*

QUITTAH—(Dr. Lundie).
*Stegomyia fasciata.*
*Culex pipiens.*
*Anopheles Maculipennis.*

## ASHANTI.—

COOMASSIE—(Doctors Claridge, Montgomery and Collier).
*Anopheles costalis.*
*Culex pipiens.*
*Stegomyia fasciata.*
*Anopheles Maculipennis.*

OBUASI—(Doctors Keigwin and Donnelly).
*Stegomyia fasciata.*
*Culex fatigans.*
*Anopheles.*

SUNYANI—(Doctors Forde, Graves, Atkinson and Wade).
*Culex fatigans.*
*Stegomyia.*
*Myzomyia funesta.*
*Culex tigripes.*

## NORTHERN TERRITORIES.—

GAMBAGA—(Doctors Watt and D'Amico).
*Stegomyia fasciata.*
*Culex fatigans.*

BAWKU—(Dr. Beamish).
*Stegomyia fasciata.*
*Anopheles Maculipennis.*
*Culex fatigans.*
*Culex pipiens.*

LORHA—(Dr. Storey).
*Stegomyia fasciata.*
*Culex ager, var. æthiopicus.*
*Culex decens.*
*Culex duttoni.*
*Culex univittatus.*
*Anopheles (Nyssorhynchus) rufipes.*
*Glossina palpalis.*
*Tabanus tæniola.*
*Tabanus biguttatus var. crocens.*
*Hippobosca maculata.*

NAVARRO—(Doctors Hay and Langley Ivers).
*Myzomyia funesta.*
*Anopheles costalis.*

BOLE—(Dr. Ingram).

*Culex duttoni.*
*Culex decens.*
*Culex tigripes.*
*Mansonioides uniformis.*
*Myzomyia funesta.*
*Anopheles (Nyssorhynchus Cellia) squamosa.*
*Nyssorhynchus watsoni.*
*Culex annulioris.*
*Culex invidiosus.*
*Myzorhynchus paludis.*
*Culex univittatus.*
*Stegomyia (Scutomyia) sugens.*
*Stegomyia fasciata.*
*Myzomyia (Pyretophorus) costalis.*
*Ochlerotatus nigeriensis.*
*Mimomyia splendens.*

SALAGA—(Dr. Alexander).

*Stegomyia fasciata.*

ZOUARAGU—(Dr. Ryan),

*Anopheles (Pyr.) costalis.*
*Culex pipiens.*
*Culex fatigans.*
*Stegomyia fasciata.*

WA—(Dr. Tighe).

*Anopheles (Pyr.) costalis.*
*Culex fatigans.*
*Culex pipiens.*

TAMALE—(Doctors Montgomery, Watson and Collier).

*Culex fatigans.*
*Stegomyia fasciata.*
*Culex univittatus.*
*Stegomyia sugens.*
*Myzomyia funesta.*
*Anopheles (Pyr.) costalis.*
*Culex pipiens.*

### *Prisons.*

The state of these buildings remain much the same as described in last year's Report, and no good can result from dilating upon conditions which, although insanitary, are inevitable, pending their replacement by buildings of a more modern type as the resources of the Colony permit.

In Table VI. will be found Statistics as to the cubic space and ventilation area per head in the various Prisons of the Colony.

### *Town Councils.*

There has been no friction between these bodies and the Sanitary Authorities, but the dual control of Sanitation which their continued existence involves has been, as it cannot fail to be, detrimental to efficiency.

### *Segregation.*

I have already, in commenting on the *Stegomyia* problem, alluded to this subject, and it is gratifying to be able to state that some progress has been made during the year with the Segregation Schemes alluded to in last year's Report.

The following extract from the Annual Sanitary and Medical Reports for the Years 1886 and 1887 throw some light on the conditions that obtained in the pre-segregation days :—

> "It must be remembered that in this Colony advancement in anything can only at present be made by incessant pressure and minute supervision by Europeans, which, if indisposed, as must frequently be the case, those officers are unable to give.
>
> "I may instance as an illustration of the difficulties of progress my own case during the last month.
>
> "Sir Brandford Griffith last year had sent the Surveyor General to personally prospect and report upon the possibility of obtaining a water supply for Accra by means of pipes from the watershed of the inland range of hills. Months afterwards he mentioned the matter to me on my arrival to take up the temporary charge of the Government, and assured me that I should find the data and materials for taking some action supplied in the report which he instructed the Surveyor General to prepare. After some pressure I succeeded in obtaining this report from the Surveyor General. I found it practically useless, and in order to ensure anything being done in the matter, I had to take the Acting Surveyor General and a Foreman of Works, and proceed myself to the interior bush on two occasions for 17 days in all, leaving the other duties of each of us to proceed as best they might. The result has been that I have obtained the information as to the possibility of obtaining a constant water supply, which I hope shortly to lay before you, but each time on my return I have been attacked with fever, and a temperature of from 104 to 106 degrees. The Acting Surveyor General is now on the sick list with jaundice, and the Foreman of Works suffered twice from fever in the bush. I mention these facts, which would be of constant occurrence in similar circumstances here, in order that the slow advance in sanitation, which might otherwise be attributed to indifference on the part of the Executive may be ascribed, at any rate so far as Sir Brandford Griffith and myself are concerned, to its right cause, viz., want of officers who are physically able to exert themselves as might be the case in a healthier Colony. I speak from a regimental experience of the West Coast of Africa extending over 23 years. . . ."

* * * * *

Local conditions have improved since then, but there can be no doubt that efficient work can only be accomplished by healthy men, and in a country in which the principal diseases are fly-borne, segregation is the most effective method of securing such conditions.

## EDUCATIONAL PROPHYLAXIS.

The Director of Education reports good progress in this direction, and in the Appendix will be found copies of the following pamphlets of an educational nature which have been issued by this Department :—

1. Rules for the guidance of Sanitary Committees.
2. Directions for the guidance of those laying out new Villages and for the Sanitation of Villages.
3. Simple directions for the guidance of persons building houses in towns and villages not under the Towns Ordinance.
4. "How to avoid being prosecuted by the Sanitary Inspector."

### GOVERNMENT BUNGALOWS.

During the year type-plans have been designed making provision for a separate bungalow for each Officer, the need for which is emphasised in the following lugubrious extract from a letter dated 27th September, 1893, from the Chief Medical Officer to the Honourable Colonial Secretary :—

* * * * *

> "In cases of illness it is most distressing to the inmates of the adjacent quarters to overhear the plaintive, perhaps petulant, calls of patients, the noise of vomiting, the groans of those in agony and the moans of the dying. And no one but he who has felt them can realize what these conditions mean."

### *Climatic and Social Conditions with reference to their Influence upon the Health of the European Community.*

The foregoing extract calls to one's mind the spirit of the 137th Psalm.

The following extract from a report by the Medical Officer of Axim, written in the year 1886, is in the same doleful spirit :—

* * * * *

> "As I have frequently remarked in my official reports, this Colony is overshadowed by a curse, the curse of a bad name. It would serve no useful purpose 'to waste the time yet ours, in trampling on thistles because they have yielded no figs,' it is useless lamenting the fact that to preserve the monopoly of an extraordinarily lucrative trade, merchants have damned the place by giving it a bad name, and thus crippled all attempts at developing the resources of the Colony. We can at least serve one useful purpose, we can show that we enjoy no monopoly of any one peculiarly fatal and malignant disease ; that even in malaria we cannot claim pre-eminence, for the 'pernicious comatose' form of malarial fever in which after a single paroxysm the patient dies in coma. . . ."

* * * * *

There can be no doubt that in the past, officials as well as merchants have caballed to keep up the evil reputation of the Colony.

But under modern conditions statistics go to prove that the West Coast is no more unhealthy than many other parts of the tropics ; it is however, a dull country, and it must be remembered that the majority of men live out here separated from their women-kind and deprived of most of the refinements and amenities of life. In many stations facilities for healthy exercise (tennis, squash, cricket, golf, &c.) are inadequate or altogether absent, and it is not to be wondered at if occasionally those who are lacking in self-control seek distraction in other ways.

I have personally found that it is possible, for an hour, spent even on the execrable golf links in this Colony, to forget that one is in West Africa, and I am convinced that it is the duty of the Administration to make more adequate provision for such games than has been done in the past.

The following are the recommendations as to Works under Sanitary Improvements for 1913, submitted by the Acting Senior Sanitary Officer to the Director of Public Works at the end of the year :—

### SANITARY IMPROVEMENTS, 1913.

PAKRO.—

Latrines, slaughter-house, drainage of swamp.

SOMANYA.—

Latrines, destructor, drainage.

KOMFRODUA.—

Roofing pit latrines, destructor, dustbins, slaughter-house, drainage.

AKUSE.—

Macgregor wells, pound, latrines, drainage.

DIXCOVE.—

Wells, drainage.

ABURI.—

Slaughter-house, improving water supply, drainage, destructors and dustbins.

ADDAH.—

Slaughter-house, filling in and draining swamp, improving water supply, destructors (Catchment area).

ELMINA.—

Drainage.

DUNKWA.—(A new town growing up).

Latrines, destructor, dustbins, slaughter-house, draining and filling in swamps.

AJUA.—

Wells, drainage, etc.

KIBBI.—

Slaughter-house, mortuary, destructor, latrines, dustbins, drainage.

NSAWAM.—

Latrines, slaughter-house, destructor, dustbins, building new market, drainage.

MANGOASE.—(A new town growing up).

Latrines, drainage, destructors, slaughter-house, improving market, &c.

ADAWSO.—

Draining and reconstructing market, latrines, wells, slaughter-house, destructors, general drainage.

DODOWA.—

Building new market place and demolition of old one, drainage, improving wells, latrines, destructors.

QUITTAH.—

Drainage, latrines, wells, improving market place.

WESHIANG.—

Destructor, slaughter-house, latrines, dustbins.

OBLOGO.—

Destructors, dustbins, latrines.

NSABA (New Station).—

Destructors, slaughter-house, latrines, dustbins, drainage, remodelling of native town.

NYAKROM (New Station).—

Destructors, slaughter-house, latrines, dustbins, drainage, remodelling of native town.

KWANYAKO (New Station).—

Destructors, slaughter-house, latrines, dust-bins, drainage, re-modelling of native town.

SOADRU (New Station).—

Destructors, slaughter-house, dustbins, latrines, drainage, wash-houses, re-modelling village and laying out Hausa town.

APPAM.—

Destructors, sea latrines, latrines.

ANNAMABOE.—

Protecting storage tanks and repairing catchment area, market shed, destructor (repairs), latrines.

AXIM.—

Drainage, filling in swamps, culverts, wash-houses, dustbins, destructors.

TARQUAH.—

Drainage, filling in swamps, destructors, latrines, acquiring houses and re-modelling native town, setting out new native town.

CAPE COAST.—

Drainage, filling in swamps, windmill, well and wash-house, dustbins, sea platform to wash latrine pans, land latrines, wells, destructors.

SALTPOND.—

Acquiring and removing houses in segregation area, drainage, destructors, latrines, dustbins.

WINNEBAH.—

Drainage, latrines, dustbins, slaughter-house, destructors, sea latrine.

PRESTEA.—

Destructor, latrines, dustbins.

CHAMA :—

Drainage, wells, latrines, destructor.

PRAM PRAM.—

Destructor, latrines.

### ASHANTI.

COOMASSIE.—

Drains, culverts, bridges, destructors, repairs to destructors and alterations.

SUNYANI.—

Destructors, latrines, dustbins, drainage.

KINTAMPO.—

Destructors, latrines, dustbins, drainage.

In the Appendix will be found Summaries of Routine Sanitary Works carried out during the year at the following stations :—

ACCRA,
WINNEBAH,
SALTPOND,
CAPE COAST,
ELMINA,
SECCONDEE,
AXIM,
TARQUAH,
DUNKWA,
ADDAH,
AKUSE,
QUITTAH,
COOMASSIE,
OBUASI.

THOS. C. RICE,
*Senior Sanitary Officer.*

ACCRA,
17*th June*, 1913.

# TABLE I.

## Annual Return of the Result of Periodical Examination of Blood-Smears taken from the Slaughter-Houses of the Colony and Protectorate for the Year 1912.

| | Station. | Cattle. | | | Sheep. | | | Goats. | | | Pigs. | | | Percentage in which Trypanosomes were found. | | | | Percentage in which other Parasites were found. | | | | Nature of other Parasites. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number examined. | Number in which Trypanosomes were found. | Number in which other Parasites were found. | Number examined. | Number in which Trypanosomes were found. | Number in which other Parasites were found. | Number examined. | Number in which Trypanosomes were found. | Number in which other Parasites were found. | Number examined. | Number in which Trypanosomes were found. | Number in which other Parasites were found. | Cattle. | Sheep. | Goats. | Pigs. | Cattle. | Sheep. | Goats. | Pigs. | |
| Colony. | Accra ... ... ... | 185 | 9 | 1 | 101 | 2 | 3 | 82 | — | 2 | 77 | — | 4 | 4·86 | 1·98 | — | — | ·54 | 2·97 | 2·43 | 5·19 | |
| | Winnebah ... ... ... | — | — | — | 38 | 2 | — | 174 | 10 | 6 | — | — | — | — | 5·26 | 5·74 | — | — | — | 3·44 | — | |
| | Saltpond ... ... ... | 3 | — | — | 266 | — | — | 1052 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| | Cape Coast ... ... | 29 | — | — | 10 | — | — | 19 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| | Elmina ... ... ... | 1 | — | — | 32 | — | — | 99 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| | Seccondee ... ... ... | 14 | 1 | — | 12 | — | — | 13 | — | — | 13 | — | — | 7·14 | — | — | — | — | — | — | — | |
| | Axim ... ... ... | 2 | — | — | 21 | — | 2 | 24 | — | — | 11 | — | — | — | — | — | — | — | 9·52 | — | — | |
| | Tarquah ... ... ... | 51 | 35 | — | 25 | 1 | — | 25 | 1 | — | 6 | 1 | — | 68·62 | 4·00 | 4·00 | 16·66 | — | — | — | — | |
| | Dunkwa ... ... ... | 55 | 46 | — | 28 | 12 | — | 26 | 4 | — | — | — | — | 83·63 | 42·85 | 15·38 | — | — | — | — | — | |
| | Addah ... ... ... | 1 | — | — | 3 | — | — | 6 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| | Akuse ... ... ... | 7 | — | — | 24 | — | — | 36 | — | — | 27 | — | — | — | — | — | — | — | — | — | — | |
| | Quittah ... ... ... | 16 | 1 | 1 | 25 | — | — | 25 | — | — | 19 | 2 | 2 | 6·25 | — | — | 10·52 | 6·25 | — | — | 10·52 | |
| Ashanti. | Coomassie ... ... ... | 101 | 28 | — | 25 | 3 | — | 33 | 3 | — | 12 | — | — | 27·72 | 12·00 | 9·09 | — | — | — | — | — | |
| | Obuasi ... ... ... | 64 | 32 | — | 18 | 2 | — | 14 | — | — | 2 | — | — | 50·00 | 11·11 | — | — | — | — | — | — | |
| | Kintampo ... ... ... | 62 | 3 | — | 31 | 1 | — | — | — | — | — | — | — | 4·83 | 3·22 | — | — | — | — | — | — | |
| | Sunyani ... ... ... | 16 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| Northern Territories. | Tamale ... ... ... | 119 | 21 | 1 | 30 | 7 | — | 47 | 1 | — | — | — | — | 17·64 | 23·33 | 2·12 | — | ·84 | — | — | — | |
| | Wa ... ... ... | 50 | 1 | — | 9 | — | — | 6 | — | — | — | — | — | 2·00 | — | — | — | — | — | — | — | |
| | Gambaga ... ... ... | 27 | — | 2 | 24 | — | — | 28 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| | Salaga ... ... ... | 176 | — | 47 | 1 | — | — | 2 | — | — | — | — | — | — | — | — | — | 26·70 | — | — | — | |
| | Bole ... ... ... | 91 | 11 | — | 36 | 1 | — | 5 | — | — | — | — | — | 12·08 | 2·77 | — | — | — | — | — | — | |
| | Navarro and Tumu ... | 27 | 1 | — | 93 | 2 | — | 6 | — | — | — | — | — | 3·70 | 2·15 | — | — | — | — | — | — | |
| | Zouaragu ... ... ... | 63 | — | — | 21 | — | — | 67 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| | Bawku ... ... ... | 27 | — | — | 50 | — | — | 30 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| | Lorha ... ... ... | 20 | 1 | — | 16 | 2 | — | 27 | 2 | 1 | — | — | — | 5·00 | 12·50 | 7·40 | — | — | — | 3·07 | — | |
| | Total ... ... | 1207 | 190 | 52 | 939 | 35 | 5 | 1846 | 21 | 9 | 167 | 3 | 6 | 15·79 | 3·71 | 1·13 | 1·79 | — | — | — | — | |

## TABLE II.

### Larval Index for the Year 1912.

| | Station. | Premises Inspected (Monthly Average). | Larvæ found. | Protected Barrels. | Unprotected Barrels. | Protected Tanks. | Unprotected Tanks. | Protected Wells. | Unprotected Wells. | Larval Index. |
|---|---|---|---|---|---|---|---|---|---|---|
| Colony. | Accra ... ... ... ... | 4,860 | 101 | 646 | 115 | 188 | 30 | 136 | 36 | %<br>2·07 |
| | Winnebah ... ... ... | 718 | 35 | 91 | 4 | 203 | 2 | 31 | 1 | 4·87 |
| | Appam ... ... ... ... | 214 | 2 | 57 | 4 | 25 | 1 | 6 | 1 | ·93 |
| | Saltpond ... ... ... ... | 997 | 6 | 99 | — | 63 | — | 9 | 4 | ·60 |
| | Cape Coast ... ... ... | 1,979 | 36 | 8 | 20 | 235 | 16 | 285 | 7 | 1·82 |
| | Elmina ... ... ... ... | 517 | 14 | 369 | 2 | 84 | 1 | 16 | 1 | 2·70 |
| | Seccondee ... ... ... ... | 4,518 | 36 | 575 | 9 | 300 | 3 | 204 | 7 | ·78 |
| | Axim ... ... ... ... | 732 | 9 | 41 | 1 | 51 | 1 | 25 | 2 | 1·22 |
| | Tarquah ... ... ... ... | 383 | 3 | 96 | — | 60 | — | 25 | 2 | ·78 |
| | Dunkwa ... ... ... ... | 404 | 1 | 9 | 1 | 8 | — | 19 | 1 | ·47 |
| | Addah ... ... ... ... | 671 | 7 | 6 | — | 14 | — | 5 | 7 | 1·04 |
| | Akuse ... ... ... ... | 661 | 6 | 109 | 15 | 26 | — | — | — | ·90 |
| | Quittah ... ... ... ... | 169 | 6 | 35 | 12 | 18 | 1 | 49 | 11 | 3·55 |
| | Nsawam and Pakro ... ... | 1,138 | 4 | 41 | 2 | 10 | 1 | 1 | — | ·35 |
| | Adawso ... ... ... ... | 473 | 6 | 51 | 4 | 8 | — | 1 | — | 1·26 |
| | Dodowa ... ... ... ... | 239 | 1 | 106 | — | 10 | — | 226 | — | ·41 |
| | Komfrodua ... ... ... | 366 | 21 | 5 | 2 | 2 | — | — | 1 | 5·73 |
| | Mampong ... ... ... ... | 144 | — | 45 | — | — | — | — | — | — |
| | Aburi ... ... ... ... | 493 | — | 48 | 1 | 24 | — | 4 | — | — |
| Ashanti. | Coomassie ... ... ... ... | 4,850 | 15 | 113 | — | 22 | — | 13 | 92 | ·30 |
| | Obuasi ... ... ... ... | 4,816 | 4 | 16 | — | 12 | 1 | 1 | 8 | ·08 |
| | Kintampo ... ... ... ... | 268 | 5 | — | — | — | — | — | — | 1·86 |
| | Sunyani ... ... ... ... | 193 | 1 | — | — | — | — | — | 2 | ·51 |
| Northern Territories. | Tamale ... ... ... ... | 312 | 15 | — | — | 1 | — | 1 | 7 | 4·80 |
| | Wa ... ... ... ... | 138 | 1 | — | — | — | — | 2 | 17 | ·72 |
| | Gambaga ... ... ... ... | 78 | — | — | — | — | — | — | 1 | — |
| | Salaga ... ... ... ... | 236 | 2 | — | — | — | — | — | 43 | ·84 |
| | Bole ... ... ... ... | 198 | — | — | — | — | — | 1 | 1 | — |
| | Navarro and Tumu ... ... | 98 | 3 | — | — | — | — | 1 | 1 | 3·06 |
| | Zouaragu ... ... ... ... | 1,139 | 1 | — | — | — | — | — | 8 | ·08 |
| | Bawku ... ... ... ... | 124 | 2 | — | — | — | — | — | 7 | 1·61 |
| | Lorha ... ... ... ... | 60 | 11 | — | — | — | — | 2 | 3 | 18·33 |
| | Total ... | 32,186 | 354 | 2,566 | 192 | 1,364 | 57 | 1,063 | 271 | 1·99 |

## TABLE III.

### Annual Return of Spleen Rate for the Colony, Ashanti and the Northern Territories for the Year 1912.

| | Station. | Age 0 to 3 years. | | Age 3 to 8 years. | | Age 8 to 15 years. | | Total Number examined. | Total Number with enlarged spleen. | Number of blood examinations made of foregoing. | Number of Cases in which Malarial Parasites were found. | Percentage with enlarged spleen. | Percentage in which Malarial Parasites were found on blood examination. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number examined. | Number with enlarged spleen. | Number examined. | Number with enlarged spleen. | Number examined. | Number with enlarged spleen. | | | | | | |
| Colony. | Accra ... ... | 66 | 48 | 69 | 41 | 54 | 25 | 189 | 114 | 308 | 54 | 60·31 | 17·53 |
| | Winnebah ... ... | 44 | 26 | 103 | 52 | 79 | 32 | 226 | 110 | 71 | 22 | 48·67 | 30·99 |
| | Appam ... ... | 8 | 4 | 11 | 6 | 13 | 3 | 32 | 13 | — | — | 40·62 | — |
| | Saltpond ... ... | 15 | 5 | 20 | 8 | 11 | 4 | 46 | 17 | 46 | 18 | 36·93 | 39·13 |
| | Cape Coast ... ... | 121 | 87 | 79 | 60 | 42 | 23 | 242 | 170 | 12 | 8 | 70·24 | 66·66 |
| | Elmina ... ... | 13 | 8 | 9 | 3 | 4 | 1 | 26 | 12 | 9 | 1 | 46·15 | 11·11 |
| | Seccondee ... ... | 70 | 43 | 104 | 61 | 80 | 36 | 254 | 140 | 8 | 3 | 55·11 | 37·50 |
| | Axim ... ... | 147 | 100 | 111 | 63 | 14 | — | 261 | 163 | 31 | 25 | 62·45 | 80·64 |
| | Tarquah ... ... | 34 | 22 | 91 | 55 | 117 | 40 | 242 | 117 | 33 | 13 | 48·34 | 39·39 |
| | Dunkwa ... ... | 131 | 62 | 118 | 46 | 88 | 20 | 337 | 128 | 107 | 37 | 37·98 | 34·57 |
| | Addah ... ... | 274 | 163 | 284 | 144 | 138 | 39 | 696 | 346 | 37 | 22 | 49·71 | 59·45 |
| | Akuse ... .. | 99 | 38 | 106 | 48 | 76 | 22 | 281 | 108 | 45 | 2 | 38·43 | 4·44 |
| | Quittah ... ... | 133 | 87 | 223 | 131 | 108 | 46 | 464 | 264 | 195 | 65 | 56·89 | 33·33 |
| Ashanti. | Coomassie ... ... | 61 | 42 | 60 | 42 | 47 | 23 | 168 | 107 | 15 | 5 | 63·69 | 33·33 |
| | Obuasi ... ... | 71 | 53 | 198 | 113 | 246 | 75 | 515 | 243 | 53 | 10 | 47·18 | 18·86 |
| | Kintampo ... ... | 121 | 44 | 552 | 219 | 195 | 72 | 868 | 335 | 24 | 3 | 38·59 | 12·50 |
| | Sunyani ... ... | 22 | 9 | 75 | 23 | 16 | 3 | 113 | 35 | 19 | 1 | 30·97 | 5·26 |
| Northern Territories. | Tamale ... ... | 91 | 46 | 149 | 75 | 68 | 17 | 308 | 138 | 41 | 12 | 44·80 | 29·26 |
| | Wa ... ... ... | 71 | 31 | 192 | 33 | 55 | 1 | 318 | 65 | 95 | 7 | 20·40 | 7·36 |
| | Gambaga ... ... | 147 | 44 | 256 | 49 | 85 | 5 | 488 | 98 | 60 | — | 20·08 | — |
| | Salaga ... ... | 62 | 50 | 137 | 109 | 141 | 117 | 340 | 276 | 165 | 24 | 81·17 | 14·57 |
| | Bole ... ... ... | 14 | 6 | 111 | 47 | 13 | 7 | 138 | 60 | 109 | 18 | 43·46 | 16·51 |
| | Navarro and Tumu... | 91 | 25 | 188 | 31 | 43 | 2 | 322 | 58 | 67 | 4 | 18·01 | 5·97 |
| | Zouaragu ... ... | 68 | 45 | 99 | 71 | 99 | 51 | 266 | 167 | 88 | 35 | 62·78 | 39·77 |
| | Bawku ... ... | 33 | 24 | 100 | 51 | 51 | 18 | 184 | 93 | 131 | 30 | 50·54 | 22·90 |
| | Lorha ... ... | 12 | 9 | 58 | 17 | 11 | 2 | 81 | 28 | 70 | 11 | 34·56 | 15·71 |
| | Total ... | 2,019 | 1,121 | 3,503 | 1,598 | 1,894 | 684 | 7,365 | 3,405 | 1,839 | 430 | 46·23 | 23·38 |

# TABLE IV.

## RETURN SHEWING THE NUMBER OF THE INMATES OF THE PRISONS AND NATIVE HOSPITALS WHOSE STOOLS HAVE BEEN EXAMINED MICROSCOPICALLY AND TABULATING THE RESULTS DURING THE YEAR 1912.

| | Station. | | No. of cases examined. | Taenia Solium. | Rhabdonema Intestinale. | Tricocephalus Dispar. | Ankylostome Duodenale. | Uncinaria Americana. | Ascaris Lumbricoides. | Oxyuris Vermicularis. | Other Intestinal Parasites. | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COLONY. | ACCRA— | Prison | 9 | — | — | — | — | — | — | — | — | |
| | | Hospital | 34 | — | — | 7 | 13 | — | 9 | — | 3 | |
| | WINNEBAH— | Prison | 106 | 2 | — | 7 | 7 | 8 | 57 | 5 | 9 | |
| | | Hospital | 27 | — | — | 1 | 7 | 2 | 12 | 2 | 4 | |
| | SALTPOND— | Prison | 16 | — | — | — | — | — | 6 | 2 | — | |
| | | Hospital | — | — | — | — | — | — | — | — | — | |
| | CAPE COAST— | Prison | 28 | 2 | — | 2 | — | — | 7 | — | — | |
| | | Hospital | 31 | 2 | — | 1 | — | — | 11 | — | 1 | |
| | ELMINA— | Prison | 19 | — | 1 | 1 | — | — | 5 | — | — | |
| | | Hospital | — | — | — | — | — | — | — | — | — | |
| | SECCONDEE— | Prison | 99 | 13 | 2 | 3 | — | — | 19 | 1 | — | |
| | | Hospital | 143 | 22 | 1 | 7 | 1 | — | 24 | 1 | 1 | |
| | AXIM— | Prison | 3 | — | — | — | 1 | — | 1 | — | 1 | |
| | | Hospital | 23 | — | — | — | 8 | — | 8 | — | 6 | |
| | TARQUAH— | Prison | 42 | 9 | — | 14 | 2 | — | 7 | 1 | 1 | |
| | | Hospital | 26 | 4 | — | 5 | 1 | — | 7 | 1 | 1 | |
| | DUNKWA— | Prison | 31 | 1 | — | — | — | — | 4 | 4 | — | |
| | | Hospital | — | — | — | — | — | — | — | — | — | |
| | ADDAH— | Prison | 23 | — | — | — | — | — | 4 | — | — | |
| | | Hospital | 54 | 5 | — | — | — | — | 15 | — | 1 | |
| | AKUSE— | Prison | 89 | 1 | — | — | — | — | 30 | 5 | — | |
| | | Hospital | 99 | 1 | — | — | — | — | 32 | 1 | 15 | |
| | QUITTAH— | Prison | 46 | — | — | 1 | 6 | — | 27 | 3 | — | |
| | | Hospital | 9 | — | — | 1 | 1 | — | 5 | 1 | 2 | |
| ASHANTI. | COOMASSIE— | Prison | 6 | 1 | — | — | — | — | 2 | — | — | |
| | | Hospital | 8 | 1 | — | — | — | — | 2 | — | — | |
| | OBUASI— | Prison | 38 | — | — | 2 | 1 | — | 6 | 1 | — | |
| | | Hospital | 12 | 1 | — | 1 | — | — | 3 | — | — | |
| | KINTAMPO— | Prison | 33 | 5 | — | 2 | — | — | 3 | — | — | |
| | | Hospital | 13 | 2 | — | — | — | — | — | — | 1 | |
| | SUNYANI— | Prison | 12 | — | — | — | — | — | 1 | — | — | |
| | | Hospital | 4 | — | — | 1 | — | — | 1 | — | — | |
| NORTHERN TERRITORIES. | TAMALE— | Prison | 14 | 4 | — | 2 | — | 1 | — | — | 3 | |
| | | Hospital | 62 | 24 | — | 1 | — | — | 20 | 3 | 2 | |
| | WA— | Prison | — | — | — | — | — | — | — | — | — | |
| | | Hospital | 12 | 1 | — | 2 | — | — | 1 | — | — | |
| | GAMBAGA— | Prison | 31 | 9 | — | — | — | — | 1 | — | — | |
| | | Hospital | — | — | — | — | — | — | — | — | — | |
| | SALAGA— | Prison | 8 | 4 | — | 1 | — | — | — | — | 2 | |
| | | Hospital | 27 | 14 | — | — | — | — | 2 | 7 | 4 | |
| | BOLE— | Prison | 17 | — | — | 4 | — | 1 | 2 | — | — | |
| | | Hospital | — | — | — | — | — | — | — | — | — | |
| | NAVARRO AND TUMU— | | | | | | | | | | | |
| | | Prison | 9 | — | — | — | — | — | 3 | 2 | — | |
| | | Hospital | 8 | 1 | — | — | — | — | 2 | 2 | — | |
| | ZOUARAGU— | Prison | — | — | — | — | — | — | — | — | — | |
| | | Hospital | 106 | 21 | — | 39 | — | — | 55 | 12 | — | |
| | BAWKU— | Prison | 49 | 4 | — | 2 | — | — | — | — | — | |
| | | Hospital | 13 | 2 | — | — | — | — | 1 | — | — | |
| | LORHA— | Prison | 55 | 5 | — | 11 | — | — | 5 | — | — | |
| | | Hospital | 13 | 3 | — | 2 | 1 | — | 3 | — | — | |
| | TOTAL ... | ... | 1,517 | 164 | 4 | 120 | 49 | 12 | 403 | 54 | 57 | |

## TABLE V.

### ANNUAL RETURN OF PROSECUTIONS MADE IN THE SANITARY DEPARTMENT FOR THE YEAR 1912.

| | Station. | Number of Prosecutions. | | | No. of Convictions. | No. Fined. | Total Amount of Fines. | | | No. Imprisoned |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Larvæ. | Other Offences. | Total. | | | £ | s. | d. | |
| COLONY. | Accra ... ... | 724 | 262 | 986 | 963 | 963 | 368 | 3 | 6 | |
| | Winnebah ... | 64 | 94 | 158 | 147 | 143 | 122 | 1 | 0 | |
| | Soadru and Nsaba | 1 | 372 | 373 | 312 | 312 | 685 | 11 | 0 | |
| | Appam ... ... | 28 | 30 | 58 | 53 | 53 | 35 | 16 | 0 | |
| | Saltpond ... ... | 81 | 41 | 122 | 113 | 112 | 125 | 11 | 0 | 1 |
| | Cape Coast ... | 215 | 224 | 439 | 436 | 436 | 105 | 18 | 6 | |
| | Elmina ... ... | 170 | 56 | 226 | 220 | 219 | 76 | 13 | 0 | |
| | Seccondee ... | 322 | 93 | 415 | 395 | 394 | 167 | 18 | 6 | 1 |
| | Axim ... ... | 89 | 34 | 123 | 116 | 115 | 58 | 7 | 0 | |
| | Tarquah ... ... | 19 | 49 | 68 | 65 | 65 | 28 | 3 | 6 | |
| | Addah ... ... | 51 | 32 | 83 | 73 | 71 | 34 | 2 | 6 | 2 |
| | Akuse ... ... | 75 | 245 | 320 | 303 | 302 | 104 | 3 | 0 | |
| | Quittah ... ... | 26 | 227 | 253 | 231 | 222 | 47 | 8 | 0 | 9 |
| | Dodowa ... ... | 41 | 66 | 107 | 107 | 106 | 169 | 12 | 0 | |
| | Nsawam and Pakro | 114 | 131 | 245 | 236 | 236 | 254 | 9 | 0 | |
| | Adawso ... ... | 76 | 114 | 190 | 188 | 188 | 118 | 2 | 0 | |
| | Komfrodua ... | 57 | 156 | 213 | 210 | 210 | 226 | 10 | 6 | |
| | Aburi ... ... | 24 | 45 | 69 | 69 | 69 | 79 | 10 | 0 | |
| | Mampong ... | 27 | 56 | 83 | 82 | 82 | 81 | 0 | 0 | |
| | Akropong ... | 5 | 13 | 18 | 18 | 18 | 4 | 15 | 0 | |
| | Dunkwa ... ... | 19 | 60 | 79 | 77 | 77 | 24 | 16 | 0 | |
| ASHANTI. | Coomassie ... | 165 | 381 | 546 | 546 | 546 | 164 | 9 | 0 | |
| | Obuasi ... ... | 43 | 238 | 281 | 276 | 274 | 75 | 12 | 0 | |
| | Kintampo ... | 31 | 77 | 108 | 102 | 101 | 24 | 6 | 6 | 1 |
| | Sunyani ... ... | 2 | 40 | 42 | 42 | 42 | 5 | 12 | 0 | |
| NORTHERN TERRITORIES. | Tamale ... ... | 39 | 104 | 143 | 143 | 119 | 17 | 16 | 0 | |
| | Wa ... ... | — | 20 | 20 | 16 | 15 | 1 | 14 | 0 | |
| | Gambaga ... ... | — | 28 | 28 | 28 | 7 | 1 | 14 | 6 | |
| | Salaga ... ... | 4 | 53 | 57 | 52 | 49 | 16 | 14 | 6 | |
| | Bole ... ... | — | 19 | 19 | 19 | 19 | 16 | 14 | 6 | |
| | Navarro and Tumu | — | 1 | 1 | 1 | 1 | 0 | 2 | 6 | |
| | Zouaragu ... ... | — | 22 | 22 | 21 | 12 | 0 | 10 | 6 | |
| | Bawku ... ... | — | — | — | — | — | — | — | — | |
| | Lorha ... ... | — | 17 | 17 | 17 | 12 | 0 | 8 | 0 | |
| | TOTAL ... ... | 2,512 | 3,400 | 5,912 | 5,677 | 5,590 | £3,244 | 5 | 0 | 14 |

# TABLE VI.

## PRISON RETURN FOR THE YEAR 1912.

| Station. | Daily Average Number in Prison. | Total Cubic Area of Cells. | Total Ventilation Area of Cells. | Average Cubic Space per head. | Average Ventilation Area per head. | Daily Average Number on Sick List. | Number discharged on Certificate of Medical Officer. | Number of Deaths. |
|---|---|---|---|---|---|---|---|---|
| Accra | 205 | 64343 | 788·81476 | 313·86 | 3·84 | 2 | 5 | 6 |
| Cape Coast | 76 | 26650·26 | 83·2 | 350·66 | 1·09 | 5 | 1 | — |
| Elmina | 54 | 47152·61 | 200·48 | 873·19 | 3·71 | 1 | — | 1 |
| Seccondee C.P. | 186 | 104672 | 2404·26 | 562·75 | 12·92 | 5 | 6 | 8 |
| Seccondee F.O. | 95 | 22333·62 | 198·04 | 235·09 | 2·08 | 5 | — | — |
| Axim | 30 | 10696 | 69·2 | 356·50 | 2·30 | — | — | — |
| Quittah | 35 | 13038·92 | 57·37 | 372·54 | 1·92 | 1 | 3 | — |
| Tarquah | 53 | 22634 | 204·5 | 427·05 | 3·85 | 1 | — | — |
| Akuse | 42 | 20317·5 | 172·71 | 483·75 | 4·11 | — | — | — |
| Addah | 25 | 9735 | 78·57 | 389·40 | 3·14 | — | — | 1 |
| Saltpond | 22 | 12416 | 96·9 | 564·36 | 4·40 | — | — | — |
| Winnebah | 28 | 12706 | 57 | 453·78 | 2·03 | — | — | 1 |
| Dunkwa | 11 | 3780 | 26·49 | 343·63 | 2·40 | — | — | — |
| Coomassie | 96 | 17642 | 177 | 183·77 | 1·84 | 3 | — | 6 |
| Obuasi | 56 | 19724 | 265 | 352·21 | 4·73 | 3 | — | 2 |
| Sunyani | 17 | 6960 | 80 | 409·41 | 4·70 | — | — | — |
| Kintampo | 13 | 3420 | 12·5 | 263·07 | ·96 | — | — | — |
| British Kratchi | 2 | 2328·2 | 4·2 | 1162·10 | 2·10 | — | — | — |

## TABLE VII.

### RETURN OF MALARIAL FEVER, BLACK-WATER FEVER, YELLOW FEVER, FILARIASIS AND DENGUE, DURING THE YEAR FROM THE 1st JANUARY TO 31st DECEMBER, 1912.

| | | |
|---|---|---|
| 1. Name of Colony ... ... ... ... | | Gold Coast. |
| 2. Total area ... ... ... ... ... | | 80,235 square miles. |
| 3. Estimated population— | | |
| (*a*) Total ... ... ... ... ... | | 1,503,386. |
| (*b*) Europeans ... ... ... ... | | 1,343. |
| (*c*) Asiatics ... ... ... ... ... | | 46. |
| (*d*) Other races ... ... ... ... | | 1,501,997. |
| 4. Births during the year... ... ... ... | | Births are not registered in the Colony until later in the year. |
| 5. Deaths during the year— | | |
| (*a*) Total deaths ... ... ... ... | | Colony 2,166. |
| (*b*) Deaths ascribed to Fever ... ... | | — |
| (*c*) Deaths ascribed to Black-water Fever... | | 6. |
| (*d*) Deaths ascribed to Yellow Fever ... | | 4. |
| 6. Government Hospitals— | | |
| (*a*) Number of such Hospitals ... ... | | 22. |
| (*b*) Totals during year | (admissions) ... | 3,837. |
| | (deaths) ... ... | 230. |
| (*c*) Malarial Fever | (admissions) ... | 460. |
| | (deaths) ... ... | 5. |
| (*d*) Black-water Fever | (admissions) ... | 15. |
| | (deaths) ... ... | 6. |
| (*e*) Yellow Fever | (admissions) ... | 6. |
| | (deaths) ... ... | 4. |
| (*f*) Filarial Diseases | (admissions) ... | 25. |
| | (deaths) ... ... | 3. |
| (*g*) Dengue | (admissions)... ... | Nil. |
| | (deaths) ... ... | Nil. |
| 7. Government Dispensaries— | | |
| (*a*) Number of such Dispensaries ... ... | | 29. |
| (*b*) Total attendances during year ... ... | | 42,333. |
| (*c*) Attendances for Malaria ... ... | | 1,806. |
| (*d*) Attendances for Filarial Diseases ... | | 1. |
| (*e*) Attendances for Dengue ... ... | | Nil. |
| 8. Medical Service— | | |
| (*a*) Number of Government Medical Officers | | 56. |
| (*b*) Number of Special Health Officers ... | | 5. |
| (*c*) Number of other registered Practitioners | | 19. |
| 9. Schools— | | |
| (*a*) No. of Government and State-aided Schools ... ... ... ... | | 153. |
| (*b*) No. of Scholars registered in these schools | | 18,524. |
| (*c*) Percentage of daily attendances ... | | 14,113. |

10. Estates employing indentured labour—

| | |
|---|---|
| (*a*) Number of such ... ... ... ... | No returns. |
| (*b*) Number of indentured labourers employed ... ... ... ... ... | |
| (*c*) No. of Hospitals and Dispensaries on such estates ... ... ... ... | |
| (*d*) Total deaths among such labourers ... | |
| (*e*) Deaths ascribed to Malaria ... ... | |
| (*f*) Total admissions and attendances at Hospitals and Dispensaries ... ... | |

11. Estimated revenue of Colony—

| | | | |
|---|---|---|---|
| Total during year ... ... ... | £1,170,000 | 0 | 0 |

12. Estimated expenditure of Colony—

| | | | |
|---|---|---|---|
| (*a*) Total during year ... ... ... | £1,120,416 | 0 | 0 |
| (*b*) Annual medical and sanitary expenditure ... ... ... ... ... | £97,801 | 0 | 0 |
| (*c*) Upkeep of Government Hospitals and Dispensaries ... ... ... ... | — | | |
| (*d*) Total salaries and allowances of M.Os. | £27,700 | 0 | 0 |
| (*e*) Total annual sanitary expenditure ... | £38,955 | 0 | 0 |

13. Towns under Municipalities or Town Councils—

| | | | |
|---|---|---|---|
| (*a*) Number of such ... ... ... ... | 3 | | |
| (*b*) Total population... ... ... ... | 39,883 | | |
| (*c*) Total revenues— | | | |
| Accra ... .. ... ... ... | £8,630 | 5 | 11 |
| Cape Coast ... ... ... ... | £3,222 | 3 | 0 |
| Seccondee ... ... ... ... | £5,143 | 2 | 9 |
| Total ... ... ... ... | £16,995 | 11 | 8 |
| (*d*) Total sanitary expenditure— | | | |
| Accra ... ... ... ... ... | £5,463 | 19 | 2 |
| Cape Coast ... ... ... ... | £2,772 | 16 | 4 |
| Seccondee ... ... ... ... | £3,286 | 16 | 6 |
| Total ... ... ... ... | £11,523 | 12 | 0 |

### 14. TABLE OF DEATHS BY DISTRICTS.

| Province. | Area. | Population. | Total Deaths. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | Total. |
| Eastern Province ... | | 442,232 | 113 | 90 | 93 | 93 | 100 | 110 | 128 | 80 | 94 | 85 | 86 | 92 | 1,164 |
| Central Province ... | | 247,121 | 61 | 48 | 51 | 52 | 40 | 53 | 55 | 57 | 49 | 50 | 33 | 54 | 603 |
| Western Province... | | 164,413 | 22 | 34 | 35 | 33 | 31 | 38 | 41 | 45 | 29 | 39 | 34 | 18 | 399 |
| Total ... ... | | 853,766 | 196 | 172 | 179 | 178 | 171 | 201 | 224 | 182 | 172 | 174 | 153 | 164 | 2,166 |

## 15. TABLE OF DEATHS IN THE PRINCIPAL TOWNS.

| Town. | District where situated. | Population. | Total Deaths. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | Total. |
| Accra ... | | | 100 | 69 | 78 | 74 | 83 | 88 | 100 | 63 | 70 | 65 | 60 | 63 | 913 |
| Winnebah | | | 19 | 10 | 12 | 16 | 9 | 12 | 22 | 13 | 12 | 15 | 10 | 14 | 164 |
| Saltpond.. | | | 11 | 8 | 12 | 10 | 16 | 14 | 7 | 8 | 10 | 9 | 4 | 9 | 118 |
| Cape Coast | | | 20 | 19 | 21 | 18 | 9 | 19 | 22 | 30 | 22 | 20 | 12 | 24 | 236 |
| Elmina ... | | | 11 | 11 | 6 | 8 | 6 | 8 | 4 | 6 | 5 | 6 | 7 | 7 | 58 |
| Seccondee | | | 6 | 13 | 12 | 8 | 12 | 11 | 15 | 17 | 12 | 13 | 9 | 8 | 136 |
| Axim ... | | | 4 | 13 | 7 | 10 | 7 | 8 | 8 | 11 | 6 | 5 | 8 | 2 | 89 |
| Tarquah... | | | 8 | 7 | 11 | 13 | 8 | 15 | 10 | 9 | 9 | 13 | 13 | 6 | 122 |
| Dunkwa... | | | 4 | 1 | 5 | 2 | 4 | 4 | 8 | 8 | 2 | 8 | 4 | 2 | 52 |
| Addah ... | | | 5 | 7 | 6 | 3 | — | 1 | 3 | 5 | 3 | — | 2 | 7 | 42 |
| Akuse ... | | | 6 | 5 | 4 | 5 | 2 | 5 | 3 | 4 | 6 | 6 | 7 | 6 | 59 |
| Kpong ... | | | 1 | 3 | 3 | 7 | 7 | 4 | 7 | 3 | 2 | 4 | 6 | 5 | 52 |
| Quittah ... | | | — | 4 | 2 | 4 | 2 | 4 | 5 | 1 | 2 | — | 4 | 6 | 34 |
| Dodowa | | | 1 | 2 | — | — | 2 | 1 | 2 | — | 1 | 2 | — | 2 | 13 |
| Aburi ... | | | — | — | — | — | 4 | 7 | 8 | 4 | 10 | 8 | 7 | 3 | 51 |
| Total ... | | | 196 | 172 | 179 | 178 | 171 | 201 | 224 | 182 | 172 | 174 | 153 | 164 | 2,139 |

## 16. RAINFALL DURING THE YEAR 1912.

| Where observed. | District. | Rainfall. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | Total. |
| Accra ... | | ·72 | ·20 | ·12 | 6·03 | 3·00 | 3·63 | 3·52 | — | ·80 | ·45 | 2·06 | — | 20·53 |
| Aburi ... | | 2·22 | 3·22 | 1·24 | 6·74 | 4·07 | 7·78 | 2·38 | 1·08 | 1·31 | ·51 | 1·73 | ·12 | 32·40 |
| Quittah ... | | 2·22 | ·71 | ·20 | 2·57 | 2·02 | 7·19 | 2·20 | — | ·09 | ·27 | ·02 | — | 17·49 |
| Cape Coast | | 2·06 | ·30 | ·30 | 1·88 | 4·44 | 8·34 | 1·94 | ·65 | ·06 | ·01 | ·11 | ·01 | 20·10 |
| Seccondee ... | | 4·20 | 1·42 | ·61 | 1·56 | 4·40 | 15·42 | 2·79 | ·17 | 1·06 | ·03 | 1·50 | ·16 | 33·32 |
| Axim ... | | 2·89 | 5·52 | 2·28 | 3·74 | 6·71 | 21·04 | 5·32 | 1·08 | 1·47 | 2·05 | 7·66 | 3·83 | 63·59 |
| Tarquah ... | | 1·30 | 3·30 | 4·07 | 7·87 | 5·75 | 8·77 | 4·30 | 1·05 | 1·90 | 7·57 | 5·03 | 1·15 | 52·06 |
| Addah ... | | ·20 | ·06 | — | 3·32 | 11·62 | 4·78 | 2·60 | — | ·20 | ·74 | 3·56 | — | 27·16 |
| Total ... | | 15·81 | 14·73 | 8·82 | 33·71 | 42·01 | 76·95 | 25·05 | 4·03 | 6·89 | 11·63 | 21·67 | 5·27 | 266·65 |
| Coomassie ... | | — | 2·62 | 5·60 | 7·74 | 3·29 | 11·85 | 3·98 | 1·19 | 3·79 | 4·49 | 5·39 | ·60 | 50·54 |
| Kintampo ... | | — | — | 2·74 | 6·66 | 4·55 | 7·96 | 5·06 | 3·72 | 5·74 | — | 1·00 | ·82 | 38·25 |
| Sunyani ... | | ·10 | 2·99 | 3·16 | 10·05 | 2·95 | 4·32 | 2·87 | 1·78 | 3·77 | 3·21 | 1·52 | ·18 | 36·90 |
| Total ... | | ·10 | 5·61 | 11·50 | 24·45 | 10·79 | 24·13 | 11·91 | 6·69 | 13·30 | 7·70 | 7·91 | 1·60 | 125·69 |
| Tamale ... | | ·01 | ·02 | 1·64 | 3·75 | 2·83 | 3·57 | 4·08 | 7·25 | ·17 | 3·87 | — | ·01 | 27·20 |
| Gambaga ... | | — | — | ·23 | ·64 | 3·87 | 4·65 | 7·00 | 11·65 | 11·33 | — | — | — | 39·37 |
| Total ... | | ·01 | ·02 | 1·87 | 4·39 | 6·70 | 8·22 | 11·08 | 18·90 | 11·50 | 3·87 | — | ·01 | 66·57 |

17. Additional information to be given, if possible, on the following points :—

| | |
|---|---|
| (*a*) Is there any legislation in force against the breeding of mosquitoes in premises ? | Yes. Ordinance No. 6 of 1911. |
| Number of notices served ... ... ... | 2,533. |
| Number of convictions ... ... ... | 1,881. |
| (*b*) Number of children examined for enlarged spleen ... ... ... ... | 7,365. See Table III. in Report. |
| Where was this done ... ... ... | At Government Hospitals and Dispensaries. |
| Percentage affected ... ... ... ... | 46·23. See Table III. in Report. |
| Does Kala-Azar exist ... ... ... | No case yet reported. |
| (*c*) Number of persons examined for filarial disease ... ... ... ... ... | Nil. |
| (*d*) Any large works for surface drainage of towns or reclamation of marshes ... | Yes, at Accra and Seccondee. Sanitary Improvements £27,506. 5s. 4d. |
| (*e*) Number of men employed in towns and villages for petty anti-mosquito works | Part time of 517 men employed in scavenging was utilised in anti-mosquito work. |
| Approximate cost ... ... ... ... | £12,055 voted for scavenging. |
| (*f*) Amount of Government quinine sold or distributed gratis during the year ... | Unknown. Distributed free to European Government Officials. |
| (*g*) Is quinine distributed regularly in the schools ... ... ... ... | No. |
| (*h*) Measures taken against these diseases on estates employing indentured labour ... | An Ordinance is under consideration. |
| (*i*) Any steps taken regarding the housing of the poor ... ... ... ... | Nil. |
| (*j*) Any exceptional increase or decrease of these diseases recently noticed... ... | At Accra some progress has been made in helping the better class of Native to build. |
| (*k*) Any other remarks on the subject ... | |

# GOLD COAST.

## No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town : ACCRA.

| — | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 | | |
| 1911 | | |
| 1912 | 1,740 acres | 2 proclaimed ; 31 not. |

### 2. Population.

| | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 | | | | | |
| 1911 | | | | | |
| 1912 | 9,205 | 9,937 | 210 | 32 | 19,384 |

### 3. Housing.

| — | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | 107 | 2,527 |

Number of Huts :—
1910 ... ... ...
1911 ... ... ...
1912 ... ... ... Included under Houses.

### 4. Mosquito Protection of Houses.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito protected | | | 6 |
| Number of European houses with mosquito room | | | 5 |
| Number rendered during the year wholly mosquito protected | | | *nil* |
| Number rendered during the year partially mosquito protected | | | 1 |

### 5. Erection of New Buildings during the Year.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings | | | 3 |
| Number of houses erected with sanction as to site, construction, and relation to other buildings | | | 179 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings | | | |
| Number of houses built without sanction | | | *nil* |
| Number of huts built without sanction | | | *nil* |

ACTION TAKEN :—

| — | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | *nil* | *nil* | *nil* | *nil* |

### 6. MARKETS.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 2 | 2 | *nil* |

### 7. SLAUGHTER-HOUSES.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | 1 | *nil* |

### 8. LATRINES.

| — | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... ... | 44 | 324 | 27 | 256 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... ... | 2 | 30 | 2 | 30 |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... ... | *nil* | | *nil* | |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... ... | 1 | 6 | 1 | 12 |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines... ... ... ... ... ... ... | | | 157–160 |
| Average number of pails of nightsoil removed daily ... ... ... | | | 300 (abt.) |
| Average number of soiled pails removed and clean pails substituted ... | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta ... | | | 40 |
| Number of cesspools ... ... ... ... ... ... ... ... | | | *nil* |
| Number of cesspools cleansed ... ... ... ... ... ... | | | *nil* |
| Number of new cesspools constructed during the year ... ... ... | | | *nil* |
| Number of old cesspools abolished ... ... ... ... ... | | | *nil* |
| Number of cesspools oiled regularly by Department ... ... ... | | | *nil* |

## 9. REMOVAL OF REFUSE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Dustbins ... ... ... ... ... ... ... ... | | | 46 |
| Number of carts (if employed) at work daily to remove refuse from streets... | | | 10 |
| Amount of refuse removed daily from streets... ... ... ... ... | | | 50–60 loads |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... ... ... | | | 10–12 trucks |
| Amount of refuse removed daily from yards and premises ... ... ... | | | see No. 11 |
| Number of men employed for moving refuse ... ... ... ... ... | | | 30–45 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

| —— | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of Slaughter House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | *nil* | | | 40 | | | *nil* |
| Burnt ... ... ... ... | | | *nil* | | | 50–60 | | | *nil* |
| Thrown into sea ... ... ... | | | 300 | | | *nil* | | | 1 |
| *Otherwise dealt with ... ... | | | *nil* | | | *nil* | | | *nil* |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY, AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | 40 trucks |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads ... ... ... | | | |
| Number of stand pipes in compounds and houses... ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | *nil* |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | 186 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... | | | 170 (about) |
| Tanks :— | | | |
| Public :— | | | |
| Number underground ... ... ... ... ... | | | 25 |
| Number mosquito-protected and served by pumps ... | | | 23 |
| Number above ground ... ... ... ... ... | | | 57 |
| Number mosquito-protected ... ... ... ... | | | 57 |
| Number of 400 gallons capacity or less ... ... ... | | | *nil* |
| Number above 400 gallons ... ... ... ... ... | | | 82 |

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number underground ... ... ... ... ... | | | 157 |
| Number mosquito-protected ... ... ... ... ... | | | All at one time |
| Number above ground ... ... ... ... ... | | | 150 |
| Number mosquito-protected ... ... ... ... .. | | | 149 |
| Number of 400 gallons capacity or less ... ... ... | | | 19 |
| Number above 400 gallons ... ... ... ... ... | | | 288 |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... ... ... | | | 26 |
| Iron ... ... ... ... ... ... ... ... ... | | | 124 |
| Concrete ... ... ... ... ... ... ... ... | | | 157 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... ... | | | 951 |
| Number mosquito-protected ... ... ... ... ... | | | 700 (about) |

## 13. DRAINAGE.

| Nature of drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Linear yards of masonry drains :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 16,014 | |
| Linear yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 650 | |
| Linear yards repaired during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 220 | |
| Linear yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 6,905 | |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 15,620 | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... .. ... ... ... | 7,942 | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | Every 3 months or oftener if required. | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS, AND JUNGLE.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 1,365,696 |
| Average frequency of clearance of rank vegetation on same area ... | | | As often as required. |

## 15. EXCAVATIONS AND LOW-LYING LAND.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | Variable. |
| Number of excavations filled up ... ... ... ... ... | | | 68 |
| Amount of low-lying and marsh land raised and drained ... ... | | | *nil* |
| Number of pools, marshes, streams, &c., fish-stocked ... ... | | | All. |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | *nil* |
| Number of persons fined for making new excavations ... ... | | | *nil* |
| Average number of men daily employed in filling up pools, &c. ... | | | 12 |

## 16. OILING.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... ... | | | 1,440 |
| Number of pools and excavations oiled ... ... ... ... | | | 863 |
| Number of tanks and barrels oiled ... ... ... ... ... | | | 1,485 |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... | | | 6 |

## 17. INSPECTIONS AND PROSECUTIONS.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 10–11 |
| Number of houses inspected ... ... ... ... ... ... | | | 129,120 |
| Number of houses where larvæ were found ... ... ... ... | | | 693 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... ... | | | *nil* |
| Number of persons fined for having mosquito larvæ on premises ... | | | 633 |
| Number of notices served to remove insanitary conditions on premises | | | 1,498 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 257 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

(Sgd.) Hy. O'HARA MAY,

*Medical Officer of Health.*

# GOLD COAST.

## No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town : WINNEBAH.

| —— | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | About 2 square miles | 8 |

### 2. Population.

| —— | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 ... ... ... ... | | | | | |
| 1912 ... ... ... ... | 2,966 | 2,936 | 45* | 5 | 5,952 |

* Residents and Visitors resident over 7 days.

### 3. Housing.

| —— | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | 14 | 210 |
| Number of Huts :— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | 666 | |

### 4. Mosquito Protection of Houses.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | 3 |
| Number rendered during the year wholly mosquito-protected ... | | | *nil* |
| Number rendered during the year partially mosquito-protected ... | | | 1 |

### 5. Erection of New Buildings During the Year.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... . ... | | | *nil* |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 30 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 2 |
| Number of houses built without sanction ... ... ... ... | | | *nil* |
| Number of huts built without sanction ... ... ... ... | | | *nil* |

Action Taken :—

| — | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | | | 1 | 60 ruined |

### 6. MARKETS.

| ——— | Total Number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 2 | 2 | *nil* |

### 7. SLAUGHTER-HOUSES.

| ——— | Total Number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 building | 1 | *nil* |

### 8. LATRINES.

| ——— | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of Seats. | Number. | Number of Seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... . ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 9 | 36 | 8 | 40 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... .. ... ... ... ... | 1 double | new type | building. | |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 4 | 14 | 5 | 25 |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 1 site objec | ted to by ow | ner of land. | |

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... ... | | | 40 |
| Average number of pails of nightsoil removed daily ... ... ... | | | 186 |
| Average number of soiled pails removed and clean pails substituted ... | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta ... | | | 8 |
| Number of cesspools ... ... ... .. ... ... ... ... | | | 6 |
| Number of cesspools cleansed ... ... ... ... ... ... | | | 1 |
| Number of new cesspools constructed during the year ... ... ... | | | *nil* |
| Number of old cesspools abolished ... ... ... .. ... ... | | | 5 |
| Number of cesspools oiled regularly by Department ... ... ... | | | 1 by owner |

## 9. REMOVAL OF REFUSE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... ... | | | 14 |
| Number of carts (if employed) at work daily to remove refuse from streets... | | | 3 |
| Amount of refuse removed daily from streets ... ... ... ... | | | 12 cart-loads |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... ... ... | | | 1 |
| Amount of refuse removed daily from yards and premises ... ... ... | | | 1 cartload |
| Number of men employed for moving refuse ... ... ... ... | | | 4 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

| —— | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of Slaughter House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | | | | | | | 2 cart-loads |
| Burnt ... ... ... ... | | | | | | 12 | | | |
| Thrown into sea ... ... ... | | | 186 | | | | | | |
| *Otherwise dealt with ... ... | | | | | | | | | |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | 4 |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads... ... ... ... | | | |
| Number of stand pipes in compounds and houses ... ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | *nil* |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | 31 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... | | | 30 1 under repair |
| Tanks :— | | | |
| Public :— | | | |
| Number under ground ... ... ... ... ... | | | 3 For Government use only. |
| Number mosquito-protected and served by pumps ... | | | 2 |
| Number above ground ... ... ... ... ... | | | 3 |
| Number mosquito-protected ... ... ... ... | | | 3 |
| Number of 400 gallons capacity or less ... ... ... | | | 1 |
| Number above 400 gallons ... ... ... ... ... | | | 5 |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number under ground ... ... ... ... ... | | | 17 |
| Number mosquito-protected ... ... ... ... | | | 17 |
| Number above ground ... ... ... ... ... | | | 116 |
| Number mosquito-protected ... ... ... ... | | | 116 |
| Number of 400 gallons capacity or less ... ... ... | | | 40 |
| Number above 400 gallons ... ... ... ... ... | | | 76 |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... | | | 16 |
| Iron ... ... ... ... ... ... ... ... | | | 84 |
| Concrete ... ... ... ... ... ... ... | | | 17 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... | | | 90 |
| Number mosquito-protected ... ... ... ... | | | 90 |

### 13. DRAINAGE.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Lineal yards of masonry drains :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 7,237⅓ | 139 |
| Lineal yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 15 | 39 |
| Lineal yards repaired during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | *nil* |
| Lineal yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 637½ | 39 |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 400 | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 90 | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | Monthly as required. | |

### 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 96,030 |
| Average frequency of clearance of rank vegetation on same area ... | | | Three monthly |

## 15. Excavations and Low-lying Land.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | 116 |
| Number of excavations filled up ... ... ... ... ... | | | 116 |
| Amount of low-lying and marsh land raised and drained ... ... | | | 100 sq yds. |
| Number of pools, marshes, streams, &c., fish-stocked... ... ... | | | *nil* |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | *nil* |
| Number of persons fined for making new excavations ... ... | | | *nil* |
| Average number of men daily employed in filling up pools, &c. ... | | | 4 |

## 16. Oiling.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled... ... ... ... ... ... ... | | | 8 |
| Number of pools and excavations oiled ... ... ... ... | | | 640 |
| Number of tanks and barrels oiled ... ... ... ... ... | | | 124 |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... | | | 2 |

## 17. Inspections and Prosecutions.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... .. ... ... ... | | | 1 |
| Number of houses inspected ... ... ... ... ... ... | | | 6,140 |
| Number of houses where larvæ were found ... ... ... ... | | | |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... | | not necessary on Gold Coast. | |
| Number of persons fined for having mosquito larvæ on premises ... | | | 62 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... ... ... | | | 244 |
| Number of persons fined for not removing insanitary conditions after notice... ... ... ... ... ... ... ... | | | 19 |
| Number of soda and aerated water factories inspected ... ... | | | *nil* |

(Signed) C. H. D. RALPH, M.O.

# GOLD COAST.

## No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town: SALTPOND.

| —— | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 2 square miles | 15 |

### 2. Population.

| —— | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... ... | | | | | |
| 1911 ... ... ... ... ... | | | | | |
| 1912 ... ... ... ... ... | 4,880 including | | 11 | *nil* | 4,891 |

### 3. Housing.

| —— | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | 8 | 280 |

Number of Huts :—

1910 ... ...

1911 ... ...

1912 ... ... 224

### 4. Mosquito Protection of Houses.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | 1 |
| Number rendered during the year wholly mosquito-protected ... | | | *nil* |
| Number rendered during the year partially mosquito-protected ... | | | *nil* |

### 5. Erection of New Buildings during the Year.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... ... | | | *nil* |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 22 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of houses built without sanction ... ... ... ... | | | *nil* |
| Number of huts built without sanction ... ... ... ... | | | *nil* |

ACTION TAKEN :

| —— | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | *nil* | *nil* | *nil* | *nil* |

## 6. MARKETS.

| —— | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | 1 | *nil* |

## 7. SLAUGHTER-HOUSES.

| —— | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... .. .. | 1 | 1 | *nil* |

## 8. LATRINES.

| —— | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... .. ... ... ... . . | | | | |
| 1912 ... ... ... ... ... ... | 14 | 80 | 13 | 94 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 1 | 4 | *nil* | *nil* |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 1 | 6 | 1 | 6 |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... | | | 15 |
| Average number of pails of nightsoil removed daily ... ... ... | | | 122·12 |
| Average number of soiled pails removed and clean pails substituted ... | | | 6 |
| Number of nightsoil men employed to clean latrines and remove excreta ... | | | 8 men & 4 convicts } 12 |
| Number of cesspools ... ... ... ... ... ... ... ... | | | *nil* |
| Number of cesspools cleansed ... ... ... ... ... ... | | | *nil* |
| Number of new cesspools constructed during the year ... ... ... | | | *nil* |
| Number of old cesspools abolished ... ... ... ... ... ... | | | *nil* |
| Number of cesspools oiled regularly by department ... ... ... ... | | | *nil* |

## 9. REMOVAL OF REFUSE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... ... | | | 14 |
| Number of carts (if employed) at work daily to remove refuse from streets | | | 5 |
| Amount of refuse removed daily from streets ... ... ... ... | | | 12·9 |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... ... ... | | | Same as above. |
| Amount of refuse removed daily from yards and premises ... ... ... | | | 25·6 |
| Number of men employed for moving refuse... ... ... ... ... | | | 26 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

| —— | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of slaughter-house and market offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | | | | | | | |
| Burnt ... ... ... ... | | | | | | | | | 4·7 |
| Thrown into sea ... ... ... | | | | | | 38·5 | | | |
| *Otherwise dealt with ... ... | | | 122·12 | | | | | | |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | 3·1 Buried |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads ... ... ... | | | |
| Number of stand pipes in compounds and houses ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... ... | | | 5 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... ... | | | 5<br>But pumps are not in good condition. |
| Private :— | | | |
| Number ... ... ... ... ... ... ... ... | | | 14 |
| Number protected against surface water and mosquito-protected | | | 11 |
| Tanks :— | | | |
| Public :— | | | |
| Number underground ... ... ... ... ... ... | | | 1 |
| Number mosquito-protected and served by pumps ... ... | | | 1<br>But pumps are not in good condition. |
| Number above ground ... ... ... ... ... ... | | | *nil* |
| Number mosquito-protected ... ... ... ... ... | | | *nil* |
| Number of 400 gallons capacity or less ... ... ... ... | | | *nil* |
| Number above 400 gallons ... ... ... ... ... ... | | | *nil* |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number underground ... ... ... ... ... ... | | | 12 |
| Number mosquito-protected ... ... ... ... ... | | | — |
| Number above ground ... ... ... ... ... ... | | | 38 |
| Number mosquito-protected ... ... ... ... ... | | | — |
| Number of 400 gallons capacity or less ... ... ... .. | | | — |
| Number above 400 gallons ... ... ... ... ... ... | | | — |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... ... | | | 10 |
| Iron ... ... ... ... ... ... ... ... ... | | | 28 |
| Concrete ... ... ... ... ... ... ... ... | | | 12 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... ... | | | 118 |
| Number mosquito-protected ... ... ... ... ... | | | — |

## 13. DRAINAGE.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Linear yards of masonry drains :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |
| Linear yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |
| Linear yards repaired during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |
| Linear yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 3,145 | 23 |
| Earth drains or ditches — | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 250 | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 100 | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | Monthly. | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass and vegetation cut and removed. ... ... ... ... ... ... ... ... | | | 58,837 |
| Average frequency of clearance of rank vegetation on same area | | | Daily. |

## 15. EXCAVATIONS AND LOW-LYING LAND.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | — |
| Number of excavations filled up ... ... ... ... ... | | | 20 |
| Amount of low-lying and marsh land raised and drained ... ... | | | 7 |
| Number of pools, marshes, streams, &c., fish-stocked ... ... | | | — |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | — |
| Number of persons fined for making new excavations ... ... | | | — |
| Average number of men daily employed in filling up pools, &c. ... | | | — |

## 16. OILING.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... ... ... | | | — |
| Number of pools and excavations oiled ... ... ... ... | | | 64 |
| Number of tanks and barrels oiled ... ... ... ... ... | | | — |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... | | | 1 |

## 17. INSPECTIONS AND PROSECUTIONS.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 1 |
| Number of houses inspected ... ... ... ... ... ... | | | 11,973 |
| Number of houses where larvæ were found ... ... ... ... | | | 68 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... ... | | | 12 |
| Number of persons fined for having mosquito larvæ on premises ... | | | 63 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... ... ... | | | 53 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 11 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

# GOLD COAST.

No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

1. Name of Town: CAPE COAST.

| — | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 2½ square miles | 3 |

2. Population.

| — | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 ... ... ... ... | | | | | |
| 1912 ... ... ... ... | 5,422 | 5,849 | 32 | 6 | 11,309 |

3. Housing.

| — | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses:— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | 18 | 1,154 |

| | |
|---|---|
| Number of Huts:— | |
| 1910 ... ... ... | |
| 1911 ... ... ... | |
| 1912 ... ... ... | 499 |

4. Mosquito Protection of Houses.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | 4 |
| Number rendered during the year wholly mosquito-protected ... | | | *nil* |
| Number rendered during the year partially mosquito-protected ... | | | *nil* |

5. Erection of New Buildings during the Year.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... | | | *nil* |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of houses built without sanction ... ... ... ... | | | 8 |
| Number of huts built without sanction ... ... ... ... | | | *nil* |

ACTION TAKEN :—

| — | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | *nil* | 8 | 19 | 77 |

## 6. MARKETS.

| —— | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | *nil* | 1 |

## 7. SLAUGHTER-HOUSES.

| —— | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | 1 | *nil* |

## 8. LATRINES.

| —— | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 16, 2 sea, 4 pit | 156 | 16, 1 sea, 4 pit | 156 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 1 | 30 | 1 | 30 |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 7, 2 sea | | 7, 1 sea | |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 3 | 8 | 3 | 8 |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... | | | 76 |
| Average number of pails of nightsoil removed daily ... ... | | | 747 |
| Average number of soiled pails removed and clean pails substituted | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta ... ... ... ... ... ... ... ... | | | 32 |
| Number of cesspools ... ... ... ... ... ... ... | | | |
| Number of cesspools cleansed ... ... ... ... ... | | | *nil* |
| Number of new cesspools constructed during the year ... ... | | | |
| Number of old cesspools abolished ... ... ... ... ... | | | |
| Number of cesspools oiled regularly by Department ... ... | | | |

## 9. Removal of Refuse.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... |  |  | 49 |
| Number of carts (if employed) at work daily to remove refuse from streets ... ... ... ... ... ... ... ... |  |  | 11 |
| Amount of refuse removed daily from streets ... ... ... |  |  | 76½ cartl'ds. |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... |  |  | *nil* |
| Amount of refuse removed daily from yards and premises ... ... |  |  | *nil* |
| Number of men employed for moving refuse ... ... ... |  |  | 33 |

## 10. Mode of Disposal of Excreta, Refuse and Offal.

| — | Daily average number of pails of excreta. |  |  | Daily average number of cartloads of refuse. |  |  | Daily average number of cartloads of Slaughter-House and Market Offal. |  |  |
|---|---|---|---|---|---|---|---|---|---|
|  | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... |  |  | *nil* |  |  | 1 |  |  | 1/15 head load |
| Burnt ... ... ... ... ... |  |  | *nil* |  |  | 75½ |  |  | *nil* |
| Thrown into sea ... ... ... |  |  | 747 |  |  | *nil* |  |  | 1/7 |
| *Otherwise dealt with ... ... |  |  | *nil* |  |  | *nil* |  |  | *nil* |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
|  |  | *nil* |

## 12. Water Supply.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— |  |  |  |
| Source (river, lake or spring) :— |  |  |  |
| Number of linear yards ... ... ... ... ... |  |  | *nil* |
| Number of stand pipes along roads ... ... ... |  |  |  |
| Number of stand pipes in compounds and houses ... |  |  |  |
| Wells :— |  |  |  |
| Public :— |  |  |  |
| Number ... ... ... ... ... ... ... |  |  | 7 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... |  |  | 3 |
| Private :— |  |  |  |
| Number ... ... ... ... ... ... ... |  |  | 201 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... |  |  | 195 |
| Tanks:— |  |  |  |
| Public :— |  |  |  |
| Number underground ... ... ... ... ... |  |  | 14 |
| Number mosquito-protected and served by pumps ... |  |  | 13 |
| Number above ground ... ... ... ... ... |  |  | 6 |
| Number mosquito-protected ... ... ... ... |  |  | 6 |
| Number of 400 gallons capacity or less ... ... ... |  |  | *nil* |
| Number above 400 gallons ... ... ... ... ... |  |  | 20 |

| —— | 1910. | 1912. | 1911. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number underground ... ... ... ... ... | | | 58 |
| Number mosquito-protected ... ... ... ... | | | 18 |
| Number above ground ... ... ... ... ... | | | 125 |
| Number mosquito-protected ... ... ... ... | | | 117 |
| Number of 400 gallons capacity or less ... ... ... | | | 83 |
| Number above 400 gallons ... ... ... ... | | | 100 |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... | | | 8 |
| Iron ... ... ... ... ... ... ... ... | | | 117 |
| Concrete ... ... ... ... ... ... ... | | | 58 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... | | | 591 |
| Number mosquito-protected ... ... ... ... | | | 577 |

## 13. DRAINAGE.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Lineal yards of masonry drains :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 17,066 yds. 2 ft. | |
| Lineal yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 262 | |
| Lineal yards repaired during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 843 | |
| Lineal yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 269½ | |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 3,357 | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 50 | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | Continuously | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 1,321.214 |
| Average frequency of clearance of rank vegetation on same area ... | | | Continuously |

## 15. EXCAVATIONS AND LOW-LYING LAND.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | ? |
| Number of excavations filled up ... ... ... ... ... | | | 18 |
| Amount of low-lying and marsh land raised and drained ... ... | | | *nil* |
| Number of pools, marshes, streams, &c., fish-stocked... ... ... | | | *nil* |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | 1,726½ |
| Number of persons fined for making new excavations ... ... | | | *nil* |
| Average number of men daily employed in filling up pools, &c. ... | | | 4–6 |

## 16. OILING.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... ... ... ... | | | 243 |
| Number of pools and excavations oiled ... ... ... ... ... | | | 382 |
| Number of tanks and barrels oiled ... ... ... ... ... ... | | | 197 |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... ... | | | 4 |

## 17. INSPECTIONS AND PROSECUTIONS.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 11 |
| Number of houses inspected ... ... ... ... ... ... ... | | | 23,747 |
| Number of houses where larvæ were found ... ... ... ... | | | 428 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... ... | | | 208 |
| Number of persons fined for having mosquito larvæ on premises ... | | | 210 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... ... ... | | | 471 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 2 |
| Number of soda and aërated water factories inspected ... ... | | | 1 |

# GOLD COAST.

No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

1. Name of Town: ELMINA.

| —— | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... .. | 20 acres | 13 |

2. Population.

| —— | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 ... ... ... ... | | | | | |
| 1912 ... ... ... ... | 1,500 | 2,500 | 3 | 3 | 4,006 |

3. Housing.

| —— | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 3 | 900 |

Number of Huts :—
1910 ... ... ...
1911 ... ... ...
1912 ... ... ... *nil*

4. Mosquito Protection of Houses.

| —— | 1910. | 1911 | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | 3 |
| Number rendered during the year wholly mosquito-protected ... | | | *nil* |
| Number rendered during the year partially mosquito-protected ... | | | *nil* |

5. Erection of New Buildings during the Year.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... | | | *nil* |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of houses built without sanction ... ... ... ... | | | 1 |
| Number of huts built without sanction ... ... ... ... | | | *nil* |

ACTION TAKEN :—

| — | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... ... | | | | |
| 1911 ... ... ... | | | | |
| 1912 ... ... ... | 1 | *nil* | *nil* | *nil* |

## 6. MARKETS.

| — | Total Number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | 1 paved | *nil* |

## 7. SLAUGHTER-HOUSES.

| — | Total Number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | *nil* | *nil* | *nil* |

## 8. LATRINES.

| — | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... .. ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 6 | 47 | 6 | 47 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | | *nil* | | |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | | *nil* | | |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... .... ... ... | | *nil* | | |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... ... | | | 3 |
| Average number of pails of nightsoil removed daily ... ... ... | | | 94 |
| Average number of soiled pails removed and clean pails substituted ... | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta ... | | | 8 Pris'n'rs |
| Number of cesspools ... ... ... ... ... ... ... ... | | | *nil* |
| Number of cesspools cleansed ... ... ... ... ... .. ... | | | |
| Number of new cesspools constructed during the year ... ... ... | | | |
| Number of old cesspools abolished ... ... ... ... ... ... | | | |
| Number of cesspools oiled regularly by Department... ... ... ... | | | |

## 9. REMOVAL OF REFUSE.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... ... | | | 6 |
| Number of carts (if employed) at work daily to remove refuse from streets | | | 1 & 3 w'h'l barrows |
| Amount of refuse removed daily from streets ... ... ... ... | | | 10 cart-loads |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... ... ... | | | *nil* |
| Amount of refuse removed daily from yards and premises ... ... | | | 2 cartl'ds |
| Number of men employed for moving refuse ... ... ... ... | | | 13 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL

| — | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of Slaughter-House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | *nil* | | | *nil* | | | *nil* |
| Burnt ... ... ... ... ... | | | *nil* | | | 12 | | | 1 head-load |
| Thrown into sea ... ... .. | | | 94 | | | *nil* | | | *nil* |
| *Otherwise dealt with ... ... | | | *nil* | | | *nil* | | | *nil* |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | *nil* |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads ... ... ... | | | |
| Number of stand pipes in compounds and houses ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | 3 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | 2 |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | 12 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... | | | 12 |
| Tanks :— | | | |
| Public :— | | | |
| Number under ground ... ... ... ... ... | | | 5 |
| Number mosquito-protected and served by pumps... ... | | | 3 |
| Number above ground ... ... .. ... ... | | | 1 |
| Number mosquito-protected ... ... ... ... | | | 1 |
| Number of 400 gallons capacity or less ... ... ... | | | 1 |
| Number above 400 gallons ... ... ... ... ... | | | 5 |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number under ground ... ... ... ... ... | | | 25 |
| Number mosquito-protected ... ... ... ... | | | 25 |
| Number above ground ... ... ... ... ... | | | 55 |
| Number mosquito-protected ... ... ... ... | | | 55 |
| Number of 400 gallons capacity or less ... ... ... | | | 30 |
| Number above 400 gallons ... ... .. ... ... | | | 50 |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... ... | | | *nil* |
| Iron ... ... ... ... ... ... ... ... | | | 55 |
| Concrete ... ... ... ... ... ... ... | | | 25 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... | | | 279 |
| Number mosquito-protected ... ... ... ... | | | 279 |

## 13. DRAINAGE.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Lineal yards of masonry drains :— | | |
| 1910 .. ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | |
| Lineal yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | |
| Lineal yards repaired during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | |
| Lineal yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 863 | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 200 | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | Once during the year | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 58,806 |
| Average frequency of clearance of rank vegetation on same area ... | | | *nil* |

### 15. Excavations and Low-lying Land.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | About 25 |
| Number of excavations filled up ... ... ... ... ... | | | 7 |
| Amount of low-lying and marsh land raised and drained ... ... | | | *nil* |
| Number of pools, marshes, streams, &c., fish-stocked ... ... | | | |
| Number of cubit yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | |
| Number of persons fined for making new excavations ... ... | | | |
| Average number of men daily employed in filling up pools, &c. ... | | | |

### 16. Oiling.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... ... | | | *nil* |
| Number of pools and excavations oiled ... ... ... ... | | | |
| Number of tanks and barrels oiled ... ... ... ... ... | | | |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... | | | 1 |

### 17. Inspections and Prosecutions.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 1 |
| Number of houses inspected ... ... ... ... ... ... | | | 6,212 |
| Number of houses where larvæ were found ... ... ... ... | | | 163 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... | | | 992 |
| Number of persons fined for having mosquito larvæ on premises ... | | | 128 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... ... ... | | | 752 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 79 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

# GOLD COAST.

No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town: SECCONDEE.

| —— | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 530 acres | 3 |

### 2. Population.

| | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 ... ... ... ... | | | | | |
| 1912 ... ... ... ... | 5,800 | 3,222 | 15 | 10 | 9,190 (approximately.) |

### 3. Housing.

| —— | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses:— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | 56 | 1,090 |

| Number of Huts:— | |
|---|---|
| 1910 ... ... ... | |
| 1911 ... ... ... | |
| 1912 ... ... ... | 141 |

### 4. Mosquito Protection of Houses.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | 1 |
| Number of European houses with mosquito room ... ... ... | | | 4 |
| Number rendered during the year wholly mosquito-protected ... | | | *nil* |
| Number rendered during the year partially mosquito-protected ... | | | 1 |

### 5. Erection of New Buildings during the Year.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... | | | 2 |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 23 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 1 Sexton's hut. |
| Number of houses built without sanction ... ... ... ... | | | 2 |
| Number of huts built without sanction ... ... ... ... | | | 4 |

ACTION TAKEN :—

| | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... ... | | | | |
| 1911 ... ... ... | | | | |
| 1912 ... ... ... | *nil* | 2 | 2 | 51 |

## 6. MARKETS.

| | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 2 | 2 | *nil* |

## 7. SLAUGHTER-HOUSES.

| | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 2 | 2 | *nil* |

## 8. LATRINES.

| | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... | 21 | 100 | 10 | 61 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... | 2 | 4 | 2 | 14 |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... | 3 | *nil* | 2 | *nil* |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... | 1 | 6 | *nil* | *nil* |

| | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... ... | | | 85 |
| Average number of pails of nightsoil removed daily ... ... ... | | | 80 |
| Average number of damaged pails removed and new pails substituted ... | | | 19 |
| Number of nightsoil men employed to clean Latrines and remove excreta | | | 20 |
| Number of cesspools ... ... ... ... ... ... ... ... | | | *nil* |
| Number of cesspools cleansed... ... ... ... ... ... ... | | | |
| Number of new cesspools constructed during the year ... ... ... | | | |
| Number of old cesspools abolished ... ... ... ... ... ... | | | |
| Number of cesspools oiled regularly by Department... ... ... ... | | | |

## 9. REMOVAL OF REFUSE.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... | | | 19 |
| Number of carts (if employed) at work daily to remove refuse from streets ... ... ... ... ... ... ... ... | | | 2 |
| Amount of refuse removed daily from streets ... ... ... | | | 4 cartloads |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... | | | 4 |
| Amount of refuse removed daily from yards and premises ... ... | | | 23 cartloads |
| Number of men employed for moving refuse ... ... ... .. | | | 56 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

| — | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of Slaughter House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | *nil* | | | 3 | | | *nil* |
| Burnt ... ... ... ... | | | *nil* | | | 24 | | | 2 |
| Thrown into sea ... ... ... | | | 80 | | | *nil* | | | *nil* |
| *Otherwise dealt with ... ... | | | *nil* | | | *nil* | | | *nil* |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN-CANS, BOTTLES, BROKEN CROCKERY, AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | 3 cartloads |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads... ... ... ... | | | |
| Number of stand pipes in compounds and houses... ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | 7 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | 7 |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | 305 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... | | | 296 |
| Tanks :— | | | |
| Public :— | | | |
| Number under ground ... ... ... ... ... | | | *nil* |
| Number mosquito-protected and served by pumps ... | | | |
| Number above ground ... ... ... ... ... | | | |
| Number mosquito-protected ... ... ... ... ... | | | |
| Number of 400 gallons capacity or less ... ... ... | | | |
| Number above 400 gallons ... ... ... ... ... | | | |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number under ground | | | 40 |
| Number mosquito-protected | | | 39 |
| Number above ground | | | 264 |
| Number mosquito-protected | | | 258 |
| Number of 400 gallons capacity or less | | | 96 |
| Number above 400 gallons | | | 208 |
| Nature of tanks :— | | | |
| Wood | | | 7 |
| Iron | | | 253 |
| Concrete | | | 44 |
| Barrels :— | | | |
| Number | | | 579 |
| Number mosquito-protected | | | 579 |

## 13. DRAINAGE.

| Nature of drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Linear yards of masonry drains :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | 14,247 | 1,820 |
| Linear yards reconstructed during the year :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | *nil* | *nil* |
| Linear yards repaired during the year :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | 274 | *nil* |
| Linear yards of new drains constructed during the year :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | $5,327\frac{1}{6}$ | 250 |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | 1,215 | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | 420 | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | At intervals as occasion requires. | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS, AND JUNGLE.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed | | | $929,657\frac{3}{5}$ |
| Average frequency of clearance of rank vegetation on same area | | | At intervals as occasion requires. |

### 15. EXCAVATIONS AND LOW-LYING LAND.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | 153 |
| Number of excavations filled up ... ... ... ... ... | | | 153 |
| Amount of low-lying and marsh land raised and drained ... ... | | | 77,826 sup yards |
| Number of pools, marshes, streams, &c., fish-stocked ... ... | | | *nil* |
| Number of cubic yards of material used for filling up pools and excavations... ... ... ... ... ... ... ... | | | 35,004 |
| Number of persons fined for making new excavations ... ... | | | *nil* |
| Average number of men daily employed in filling up pools, &c. ... | | | 6 |

### 16. OILING.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled... ... ... ... ... ... ... | | | 55 |
| Number of pools and excavations oiled ... ... ... ... | | | 951 |
| Number of tanks and barrels oiled ... ... ... ... ... | | | 709 |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... ... | | | 4 |

### 17. INSPECTIONS AND PROSECUTIONS.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 8 |
| Number of houses inspected ... ... ... ... ... ... | | | 54,656 |
| Number of houses where larvæ were found ... ... ... ... | | | 429 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... ... | | | 297 |
| Number of persons fined for having mosquito larvæ on premises ... | | | 301 |
| Number of notices served to remove insanitary conditions on premises | | | 356 |
| Number of persons fined for not removing insanitary conditions after notice... ... ... ... ... ... ... ... | | | 74 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

# GOLD COAST.

No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town : AXIM.

| —— | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... .. | | |
| 1912 ... ... ... | 8 acres. | 6 |

### 2. Population.

| —— | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 ... ... ... ... | | | | | |
| 1912 ... ... ... ... | 2,100 | 1,200 | 128 | 4 | 3,432<br>(approx.) |

### 3. Housing.

| —— | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | 14 | 867 |

Number of Huts :—
1910 ... ...
1911 ... ...
1912 ... ... 518

### 4. Mosquito Protection of Houses.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | 2 |
| Number rendered during the year wholly mosquito-protected ... | | | *nil* |
| Number rendered during the year partially mosquito-protected ... | | | *nil* |

### 5. Erection of New Buildings During the Year.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... ... | | | *nil* |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 16 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of houses built without sanction ... ... ... ... | | | |
| Number of huts built without sanction ... ... .. ... | | | |

ACTION TAKEN:—

| — | Number of Prosecutions. |  | Number demolished. |  |
|---|---|---|---|---|
|  | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... |  |  |  |  |
| 1911 ... ... |  |  |  |  |
| 1912 .. ... | *nil* | *nil* | 19 | 17 |

## 6. MARKETS.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... |  |  |  |
| 1911 ... ... ... ... ... |  |  |  |
| 1912 ... ... ... ... ... | 1 | 1 | *nil* |

## 7. SLAUGHTER-HOUSES.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... |  |  |  |
| 1911 ... ... ... ... ... |  |  |  |
| 1912 ... ... ... ... ... | 1 | 1 | *nil* |

## 8. LATRINES.

| — | For Males. |  | For Females. |  |
|---|---|---|---|---|
|  | Number. | Number of Seats. | Number. | Number of seats. |
| Number of Public Latrines :— |  |  |  |  |
| 1910 ... ... ... ... ... |  |  |  |  |
| 1911 ... ... ... ... ... |  |  |  |  |
| 1912 ... ... ... ... ... | 9 | 81 | 9 | 60 |
| Number of new Public Latrines erected during the year :— |  |  |  |  |
| 1910 ... ... ... ... ... |  |  |  |  |
| 1911 ... ... ... ... ... |  |  |  |  |
| 1912 ... ... ... ... ... | 1 | 8 | 1 | 8 |
| Number of Public Latrines repaired during the year :— |  |  |  |  |
| 1910 ... ... ... ... ... |  |  |  |  |
| 1911 ... ... ... ... ... |  |  |  |  |
| 1912 ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |
| Number of Public Latrines demolished during the year :— |  |  |  |  |
| 1910 ... ... ... ... ... |  |  |  |  |
| 1911 ... ... ... ... ... |  |  |  |  |
| 1912 ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... ... |  |  | 24 |
| Average number of pails of nightsoil removed daily ... ... ... |  |  | 165 |
| Average number of soiled pails removed and clean pails substituted ... |  |  | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta |  |  | 16 |
| Number of cesspools ... ... ... ... ... ... ... ... |  |  | *nil* |
| Number of cesspools cleansed ... ... ... ... ... ... |  |  |  |
| Number of new cesspools constructed during the year ... ... ... |  |  |  |
| Number of old cesspools abolished ... ... ... ... ... ... |  |  |  |
| Number of cesspools oiled regularly by Department ... ... ... |  |  |  |

### 9. REMOVAL OF REFUSE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... .. ... ... ... ... ... ... | | | 13 |
| Number of carts (if employed) at work daily to remove refuse from streets | | | 3 |
| Amount of refuse removed daily from streets ... ... ... ... | | | 18 |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... ... ... | | | *nil* |
| Amount of refuse removed daily from yards and premises ... ... ... | | | 3 |
| Number of men employed for moving refuse ... ... ... ... | | | 17 |

### 10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

| —— | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of slaughter house and market offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | *nil* | | | *nil* | | | *nil* |
| Burnt ... ... ... ... | | | *nil* | | | 20 | | | *nil* |
| Thrown into sea ... ... ... | | | 186 | | | *nil* | | | ·02 |
| *Otherwise dealt with ... ... | | | *nil* | | | *nil* | | | *ni* |

* State mode of disposal.

### 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | 3 |

### 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads ... ... ... | | | |
| Number of stand pipes in compounds and houses ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | 6 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | 6 |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | 28 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... | | | 25 |
| Tanks:— | | | |
| Public :— | | | |
| Number under ground ... ... ... ... ... | | | *nil* |
| Number mosquito-protected and served by pumps ... | | | *nil* |
| Number above ground ... ... ... ... ... | | | 6 |
| Number mosquito-protected ... ... ... ... | | | 6 |
| Number of 400 gallons capacity or less ... ... ... | | | 2 |
| Number above 400 gallons ... ... ... ... | | | 4 |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number under ground ... ... ... ... ... | | | *nil* |
| Number mosquito-protected ... ... ... ... | | | *nil* |
| Number above ground ... ... ... ... ... | | | 59 |
| Number mosquito-protected ... ... ... ... | | | 59 |
| Number of 400 gallons capacity or less ... ... ... | | | 51 |
| Number above 400 gallons ... ... ... ... | | | 8 |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... ... | | | 3 |
| Iron ... ... ... ... ... ... ... ... ... | | | 53 |
| Concrete ... ... ... ... ... ... ... ... | | | 3 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... | | | 62 |
| Number mosquito-protected ... ... ... ... | | | 62 |

## 13. DRAINAGE.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Linear yards of masonry drains :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | 3,088 | 31 |
| Linear yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | 426 | |
| Linear yards repaired during the year :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | *nil* | |
| Linear yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | 500 | |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 .. ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | 815 | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | *nil* | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | *nil* | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 384,029 |
| Average frequency of clearance of rank vegetation on same area | | | ? |

## 15. EXCAVATIONS AND LOW-LYING LAND.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | *nil* |
| Number of excavations filled up ... ... ... ... ... | | | 3 |
| Amount of low-lying and marsh land raised and drained ... ... | | | *nil* |
| Number of pools, marshes, streams, &c., fish-stocked ... ... | | | |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | |
| Number of persons fined for making new excavations ... ... | | | |
| Average number of men daily employed in filling up pools, &c. ... | | | |

## 16. OILING.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... ... | | | 111 |
| Number of pools and excavations oiled ... ... ... ... | | | *nil* |
| Number of tanks and barrels oiled ... ... ... ... ... | | | 8 |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... | | | 1 |

## 17. INSPECTIONS AND PROSECUTIONS.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 2 |
| Number of houses inspected ... ... ... ... ... ... | | | 11,727 |
| Number of houses where larvæ were found ... ... ... ... | | | 102 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... ... | | | 28 |
| Number of persons fined for having mosquito larvæ on premises ... | | | 84 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... ... ... | | | 167 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 24 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

# GOLD COAST.

## No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town: TARQUAH.

| —— | Approximate Area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 1½ square miles | *nil* |

### 2. Population.

| —— | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 ... ... ... ... | | | | | |
| 1912 ... ... ... ... | 1,021 | 1,050 | 47 | 5 | 2,123 |

### 3. Housing.

| —— | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | 22 | 677 |
| Number of Huts :— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | *nil* | |

### 4. Mosquito Protection of Houses.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | *nil* |
| Number rendered during the year wholly mosquito-protected ... | | | *nil* |
| Number rendered during the year partially mosquito-protected ... | | | *nil* |

### 5. Erection of New Buildings during the Year.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction and relation to other buildings ... ... ... | | | 18 |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of houses built without sanction ... ... ... ... | | | *nil* |
| Number of huts built without sanction ... ... ... ... | | | 1 |

ACTION TAKEN :—

| — | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | *nil* | 70 | *nil* | 3 |

## 6. MARKETS.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | 1 | *nil* |

## 7. SLAUGHTER-HOUSES.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | 1 | *nil* |

## 8. LATRINES.

| — | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines : | | | | |
| 1910 ... ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... ... | 12 | 74 | 6 | 48 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... ... | | | | |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... ... | 15 | *nil* | *nil* | *nil* |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... ... | | | | |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... | | | 43 |
| Average number of pails of nightsoil removed daily ... ... ... | | | 122 |
| Average number of soiled pails removed and clean pails substituted ... | | | *nil* |
| Number of nightsoil men employed to clean Latrines and remove excreta ... | | | 16 |
| Number of cesspools ... ... ... ... ... ... ... ... | | | *nil* |
| Number of cesspools cleansed ... ... ... ... ... ... ... | | | |
| Number of new cesspools constructed during the year ... ... ... | | | |
| Number of old cesspools abolished ... ... ... ... ... ... | | | |
| Number of cesspools oiled regularly by Department ... ... ... ... | | | |

### 9. REMOVAL OF REFUSE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... ... |  |  | 1 new one for bungalow. |
| Number of carts (if employed) at work daily to remove refuse from streets |  |  | 6 wheel barrows. |
| Amount of refuse removed daily from streets ... ... ... ... |  |  | do. |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... ... |  |  | do. |
| Amount of refuse removed daily from yards and premises ... ... ... |  |  | do. |
| Number of men employed for moving refuse ... ... ... ... |  |  | 6 |

### 10. MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

| —— | Daily average number of pails of excreta. |  |  | Daily average number of cartloads of refuse. |  |  | Daily average number of cartloads of Slaughter House and Market offal. |  |  |
|---|---|---|---|---|---|---|---|---|---|
|  | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... |  |  | 122 |  |  | 11 |  |  | 2 headloads. |
| Burnt ... ... ... ... |  |  |  |  |  |  |  |  |  |
| Thrown into sea ... ... ... |  |  |  |  |  |  |  |  |  |
| *Otherwise dealt with ... ... |  |  |  |  |  |  |  |  |  |

* State mode of disposal.

### 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY, AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
|  |  | 36 headloads |

### 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— |  |  |  |
| Source (river, lake or spring) :— |  |  |  |
| Number of linear yards ... ... ... ... ... |  |  | *nil* |
| Number of stand pipes along roads ... ... ... |  |  | *nil* |
| Number of stand pipes in compounds and houses ... |  |  | *nil* |
| Wells :— |  |  |  |
| Public :— |  |  |  |
| Number ... ... ... ... ... ... ... |  |  | 4 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... |  |  | 4 |
| Private :— |  |  |  |
| Number ... ... ... ... ... ... ... |  |  | 25 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... |  |  | 25 |
| Tanks :— |  |  |  |
| Public :— |  |  |  |
| Number underground ... ... ... ... ... |  |  | *nil* |
| Number mosquito-protected and served by pumps ... |  |  |  |
| Number above ground ... ... ... ... ... |  |  |  |
| Number mosquito-protected ... ... ... ... |  |  |  |
| Number of 400 gallons capacity or less ... ... ... |  |  |  |
| Number above 400 gallons ... ... ... ... |  |  |  |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number underground ... ... ... ... ... | | | 3 |
| Number mosquito-protected ... ... ... ... | | | 3 |
| Number above ground ... ... ... ... ... | | | 60 |
| Number mosquito protected ... ... ... ... | | | 60 |
| Number of 400 gallons capacity or less ... ... ... | | | 36 |
| Number above 400 gallons... ... ... ... ... | | | *nil* |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... | | | 24 |
| Iron ... ... ... ... ... ... ... ... | | | 10 |
| Concrete ... ... ... ... ... ... ... | | | 48 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... | | | 99 |
| Number mosquito-protected ... ... ... ... | | | 99 |

## 13. Drainage.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Linear yards of masonry drains :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 753,709 | |
| Linear yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | |
| Linear yards repaired during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | |
| Linear yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 24,244 | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 3,554 | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | Every fortnight. | |

## 14. Clearance of Undergrowth, Long Grass and Jungle.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed ... ... ... ... ... ... ... .. | | | 289,980 |
| Average frequency of clearance of rank vegetation on same area ... | | | Twice a Quarter |

## 15. EXCAVATIONS AND LOW-LYING LAND.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | 186 |
| Number of excavations filled up ... ... ... ... ... | | | *nil* |
| Amount of low-lying and marsh land raised and drained ... ... | | | 2,150 c.yds. |
| Number of pools, marshes, streams, &c., fish stocked ... ... | | | *nil* |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | 3,854 |
| Number of persons fined for making new excavations ... ... | | | *nil* |
| Average number of men daily employed in filling up pools, &c. ... | | | 50 |

## 16. OILING.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... ... | | | 272 |
| Number of pools and excavations oiled ... ... ... ... | | | *nil* |
| Number of tanks and barrels oiled ... ... ... ... ... | | | *nil* |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... | | | 1 |

## 17. INSPECTIONS AND PROSECUTIONS.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 1 |
| Number of houses inspected ... ... ... ... ... ... ... | | | 4,453 |
| Number of houses where larvæ were found ... ... ... ... | | | 33 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... ... | | | 99 |
| Number of persons fined for having mosquito larvæ on premises ... | | | 21 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... ... ... | | | 1,084 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 42 |
| Number of soda and aerated water factories inspected ... ... | | | *nil* |

# GOLD COAST.

No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town : DUNKWA.

| — | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 1 square mile | *nil* |

### 2. Population.

| — | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 ... ... ... ... | | | | | |
| 1912 ... ... ... ... | 1,433 | 1,060 | 34 | *Nil* | 2,527 |

### 3. Housing.

| — | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 13 | 310 |

Number of Huts :—
1910 ... ... ...
1911 ... ... ...
1912 ... ... ... 201

### 4. Mosquito Protection of Houses.

| - | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | |
| Number rendered during the year wholly mosquito-protected ... | | | |
| Number rendered during the year partially mosquito-protected ... | | | |

### 5. Erection of New Buildings during the Year.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... ... | | | 1 |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 5 |
| Number of huts erected with sanction as to site construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of houses built without sanction ... ... ... ... | | | |
| Number of huts built without sanction ... ... ... ... | | | |

ACTION TAKEN :—

| — | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | 2 | *nil* | 2 | 3 |

## 6. MARKETS.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | *nil* | *nil* |

## 7. SLAUGHTER-HOUSES.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | *nil* | *nil* | *nil* |

## 8. LATRINES.

| — | For males. | | For females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of Seats. |
| Number of Public Pan Latrines :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 2 | 12 | 2 | 12 |
| Number of new Public Pit Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 16 | 16 | 12 | 16 |
| Number of Public Pit Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 .. ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 10 | 16 | 7 | 16 |
| Number of Public Pit Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 16 | 16 | 12 | 16 |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... ... | | | 12 |
| Average number of pails of nightsoil removed daily... ... ... ... | | | 9 |
| Average number of soiled pails removed and clean pails substituted ... | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta | | | 4 |
| Number of cesspools ... ... ... ... ... ... ... ... | | | *nil* |
| Number of cesspools cleansed ... ... ... ... ... ... ... | | | |
| Number of new cesspools constructed during the year ... ... ... | | | |
| Number of old cesspools abolished ... ... ... ... ... ... | | | |
| Number of cesspools oiled regularly by department ... ... ... | | | |

## 9. REMOVAL OF REFUSE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins, sanitary ... ... ... ... ... ... ... | | | 4 |
| Number of carts (if employed) at work daily to remove refuse from streets | | | *nil* |
| Amount of refuse removed daily from streets, headloads ... ... ... | | abo | ut 36 |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... ... ... | | | *nil* |
| Amount of refuse removed daily from yards and premises ... ... ... | | | 80 headloads |
| Number of men employed for moving refuse ... ... ... ... | | | 6 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

| —— | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of Slaughter House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912 |
| Buried or trenched ... ... ... | | | 9 | | | | | | |
| Burnt ... ... ... ... | | | | | abo | ut 120 | | about 1 | 2 head-<br>[loads |
| Thrown into sea ... ... ... | | | | | | | | | |
| *Otherwise dealt with ... ... | | | | | | | | | |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF HEADLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| | | | 20 |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912 |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads ... ... ... | | | |
| Number of stand pipes in compounds and houses ... | | | |
| Wells : — | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | 1 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | *nil* |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | 18 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... | | | all |
| Tanks :— | | | |
| Public :— | | | |
| Number under ground ... ... ... ... ... | | | *nil* |
| Number mosquito-protected and served by pumps ... | | | |
| Number above ground ... ... ... ... ... | | | |
| Number mosquito-protected ... ... ... ... | | | |
| Number of 400 gallons capacity or less ... ... ... | | | |
| Number above 400 gallons ... ... ... ... | | | |

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks:— | | | |
| Private:— | | | |
| Number under ground ... ... ... ... ... | | | *nil* |
| Number mosquito-protected ... ... ... ... | | | *nil* |
| Number above ground ... ... ... ... ... | | | 8 |
| Number mosquito-protected ... ... ... ... | | | all |
| Number of 400 gallons capacity or less ... ... ... | | | 5 |
| Number above 400 gallons... ... ... ... ... | | | 3 |
| Nature of tanks:— | | | |
| Wood ... ... ... ... ... ... ... | | | 1 |
| Iron ... ... ... ... ... ... ... | | | 7 |
| Concrete ... ... ... ... ... ... ... | | | *nil* |
| Barrels:— | | | |
| Number .. ... ... ... ... ... ... | | | 9 |
| Number mosquito-protected ... ... ... ... | | | all |

## 13. DRAINAGE.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains:— | | |
| Linear yards of masonry drains:— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | |
| Linear yards reconstructed during the year:— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... .. ... ... | *nil* | |
| Linear yards repaired during the year:— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... .. ... ... ... | *nil* | |
| Linear yards of new drains constructed during the year:— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | |
| Earth drains or ditches:— | | |
| Number of linear yards of drains cleaned:— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 633·3′ | |
| Number of linear yards of drains dug and graded:— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 633·3′ | |
| Average frequency of clearing drains of grass:— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | about monthly | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 5.102 |
| Average frequency of clearance of rank vegetation on same area | | | about monthly |

### 15. Excavations and Low-lying Land.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | 230 |
| Number of excavations filled up ... ... ... ... ... | | | 128 |
| Amount of low-lying and marsh land raised and drained ... ... | | | 2,920 |
| Number of pools, marshes, streams, &c., fish-stocked ... ... | | | 2 |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | 361 |
| Number of persons fined for making new excavations ... ... | | | 48 |
| Average number of men daily employed in filling up pools, &c. ... | | | *nil* |

### 16. Oiling.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... ... | | | 184 |
| Number of pools and excavations oiled ... ... ... ... | | | 151 |
| Number of tanks and barrels oiled ... ... ... ... ... | | | 108 |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... | | | 24 |

### 17. Inspections and Prosecutions.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 1 |
| Number of houses inspected ... ... ... ... ... ... | | | 5,252 |
| Number of houses where larvæ were found ... ... ... ... | | | 18 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... | | | 45 |
| Number of persons fined for having mosquito larvæ on premises | | | 18 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... ... ... | | | 77 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 56 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

# GOLD COAST.

No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town: ADDAH.

| — | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 4 acres | *nil* |

### 2. Population.

| — | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... | | | | | |
| 1911 ... ... ... | | | | | |
| 1912 ... ... ... | 1,500 | | 11 | 1 | 1,512 |

### 3. Housing.

| — | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses:— | | |
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 8 | 250 |

Number of Huts:—
1910 ... ... ...
1911 ... ... ...
1912 ... ... ... *nil*

### 4. Mosquito Protection of Houses.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito protected ... ... | | | 5 |
| Number of European houses with mosquito room ... ... ... | | | 1 |
| Number rendered during the year wholly mosquito protected ... | | | 1 |
| Number rendered during the year partially mosquito protected ... | | | 1 |

### 5. Erection of New Buildings during the Year.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... | | | 1 |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 2 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of houses built without sanction ... ... ... ... | | | |
| Number of huts built without sanction ... ... ... ... | | | |

Action Taken : –

| — | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | *nil* | *nil* | *nil* | *nil* |

## 6. Markets.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 2 | *nil* | 2 |

## 7. Slaughter-houses.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | *nil* | *nil* | *nil* |

## 8. Latrines.

| — | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 6 | 24 | 5 | 20 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... ... | | | 9 |
| Average number of pails of nightsoil removed daily ... ... ... ... | | | 108 |
| Average number of soiled pails removed and clean pails substituted ... ... | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta ... | | | 8<br>prisoners |
| Number of cesspools ... ... ... ... ... ... ... ... ... | | | *nil* |
| Number of cesspools cleansed ... ... ... ... ... ... ... | | | |
| Number of new cesspools constructed during the year ... ... ... | | | |
| Number of old cesspools abolished ... ... ... ... ... ... | | | |
| Number of cesspools oiled regularly by Department ... ... ... ... | | | |

## 9. REMOVAL OF REFUSE.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... ... | | | *nil* |
| Number of carts (if employed) at work daily to remove refuse from streets | | | 2 |
| Amount of refuse removed daily from streets ... ... ... ... ... | | | 28 |
| Number of carts (if employed) at work daily to remove refuse from yards and premises... ... ... ... ... ... ... ... ... | | | Privately to dust bin. |
| Amount of refuse removed daily from yards and premises ... ... ... | | | |
| Number of men employed for moving refuse ... ... ... ... ... | | | 10 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

| — | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of Slaughter House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | *nil* | | | 15 | | | *nil* |
| Burnt ... ... ... ... ... | | | *nil* | | | 13 | | | |
| Thrown into sea ... ... ... | | | 108 | | | *nil* | | | |
| *Otherwise dealt with ... ... | | | *nil* | | | *nil* | | | |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | 15 |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads... ... ... ... | | | |
| Number of stand pipes in compounds and houses ... ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | 5 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | *nil* |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | 7 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... | | | 5 |
| Tanks :— | | | |
| Public :— | | | |
| Number under ground ... ... ... ... ... | | | 2 |
| Number mosquito-protected and served by pumps ... | | | *nil* |
| Number above ground ... ... ... ... ... | | | 9 |
| Number mosquito-protected... ... ... ... ... | | | 9 |
| Number of 400 gallons capacity or less ... ... ... | | | *nil* |
| Number above 400 gallons ... ... ... ... ... | | | 11 |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number under ground ... ... ... ... ... | | | 3 |
| Number mosquito-protected ... ... ... ... ... | | | 3 |
| Number above ground ... ... ... ... ... | | | 5 |
| Number mosquito-protected ... ... ... ... ... | | | 5 |
| Number of 400 gallons capacity or less ... ... ... | | | *nil* |
| Number above 400 gallons ... ... ... ... ... | | | 8 |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... ... | | | 2 |
| Iron ... ... ... ... ... ... ... ... | | | 15 |
| Concrete ... ... ... ... ... ... . | | | 2 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... | | | 8 |
| Number mosquito-protected ... ... ... ... ... | | | 8 |

## 13. DRAINAGE.

| Nature of drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Linear yards of masonry drains :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 5 | *nil* |
| Linear yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | *nil* |
| Linear yards repaired during the year :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | *nil* |
| Linear yards of new drains constructed during the year :— | | |
| 1910 ... ... ... . ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | *nil* |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 600 | *nil* |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | *nil* | *nil* |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... | | |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | 2 monthly. | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 20,000 |
| Average frequency of clearance of rank vegetation on same area ... | | | 2 monthly. |

### 15. EXCAVATIONS AND LOW-LYING LAND.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | 5 |
| Number of excavations filled up ... ... ... ... ... | | | 7 |
| Amount of low-lying and marsh land raised and drained ... ... | | | *nil* |
| Number of pools, marshes, streams, &c., fish stocked ... ... | | | |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | |
| Number of persons fined for making new excavations ... ... | | | |
| Average number of men daily employed in filling up pools, &c. ... | | | 10 |

### 16. OILING.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... ... | | | *nil* |
| Number of pools and excavations oiled ... ... ... ... | | | |
| Number of tanks and barrels oiled ... ... ... ... ... | | | |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... ... | | | |

### 17. INSPECTIONS AND PROSECUTIONS.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 1 |
| Number of houses inspected ... ... ... ... ... ... | | | 250<br>frequently. |
| Number of houses where larvæ were found ... ... ... ... | | | 57 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... ... | | | 8 |
| Number of persons fined for having mosquito larvæ on premises ... | | | 42 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... ... ... | | | 947 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 3 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

# GOLD COAST.

No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

1. Name of Town: AKUSE. *December*, 1913.

| — | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 2 Miles. | *nil* |

### 2. Population.

| — | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 ... ... ... ... | | | | | |
| 1912 ... ... ... ... | 1,728 | 1,356 | 27 | 1 | 3,112 |

### 3. Housing.

| — | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | 8 | 165 |

Number of Huts :—
1910 ... ...
1911 ... ...
1912 ... ... 506 (267 compounds).

### 4. Mosquito Protection of Houses.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | 3 |
| Number rendered during the year wholly mosquito-protected ... | | | *nil* |
| Number rendered during the year partially mosquito-protected ... | | | *nil* |

### 5. Erection of New Buildings during the Year.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 26 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 5 |
| Number of houses built without sanction ... ... ... ... | | | *nil* |
| Number of huts built without sanction ... ... ... ... | | | *nil* |

ACTION TAKEN :—

| — | Number of prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | *nil* | *nil* | 36 | *nil* |

## 6. MARKETS.

| — | Total Number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | *nil* | 1 |

## 7. SLAUGHTER-HOUSES.

| — | Total Number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 2 | 1 | 1 |

## 8. LATRINES.

| — | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 8 | 48 | 7 | 42 |
| Number of new Public Latrines erected during the year : | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... ... | | | 15 |
| Average number of pails of nightsoil removed daily ... ... ... ... | | | 67 |
| Average number of soiled pails removed and clean pails substituted ... | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta ... | | | 8 |
| Number of cesspools ... ... ... ... ... ... ... ... | | | *nil* |
| Number of cesspools cleansed ... ... ... ... ... ... ... | | | *nil* |
| Number of new cesspools constructed during the year ... ... ... | | | *nil* |
| Number of old cesspools abolished ... ... ... ... ... ... | | | 4 |
| Number of cesspools oiled regularly by Department ... ... ... ... | | | *nil* |

## 9. REMOVAL OF REFUSE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... ... | | | 4 |
| Number of carts (if employed) at work daily to remove refuse from streets | | | 2 |
| Amount of refuse removed daily from streets... ... ... ... ... | | | 6 |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... ... ... | | | *nil* |
| Amount of refuse removed daily from yards and premises ... ... ... | | | ?<br>Removed by occupier. |
| Number of men employed for moving refuse ... ... ... ... ... | | | 7 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

| —— | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of Slaughter House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or Trenched ... ... ... | | | 67 | | | 6 | | | 1 |
| Burnt ... ... ... ... ... | | | | | | | | | |
| Thrown into sea ... ... ... | | | | | | | | | |
| *Otherwise dealt with ... ... | | | | | | | | | |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | *nil*<br>Occupier removes his own rubbish. |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne Water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads... ... ... ... | | | |
| Number of stand pipes in compounds and houses... ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | *nil* |
| Number with pumps protected against surface water and mosquito-protected. | | | |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | *nil* |
| Number protected against surface water and mosquito-protected. | | | |
| Tanks :— | | | |
| Public :— | | | |
| Number underground ... ... ... ... ... | | | *nil* |
| Number mosquito-protected and served by pumps ... | | | |
| Number above ground ... ... ... ... ... | | | |
| Number mosquito-protected... ... ... ... ... | | | |
| Number of 400 gallons capacity or less ... ... ... | | | |
| Number above 400 gallons ... ... ... ... ... | | | |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number under ground | | | 3 |
| Number mosquito-protected | | | 3 |
| Number above ground | | | 24 |
| Number mosquito-protected | | | 24 |
| Number of 400 gallons capacity or less | | | 4 |
| Number above 400 gallons | | | 23 |
| Nature of tanks :— | | | |
| Wood | | | 3 |
| Iron | | | 21 |
| Concrete | | | 3 |
| Barrels :— | | | |
| Number | | | 116 |
| Number mosquito-protected | | | 116 |

## 13. DRAINAGE.

| Nature of drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Lineal yards of masonry drains :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | 151 | |
| Lineal yards reconstructed during the year :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | *nil* | |
| Lineal yards repaired during the year... | | |
| 1910 | | |
| 1911 | | |
| 1912 | *nil* | |
| Lineal yards of new drains constructed during the year :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | *nil* | |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | 395,706 | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | 7,099 | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 | | |
| 1911 | | |
| 1912 | Monthly. | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed | | | 1,884,827 |
| Average frequency of clearance of rank vegetation on same area | | | Monthly. |

## 15. Excavations and Low-lying Land.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | *nil* |
| Number of excavations filled up ... ... ... ... ... | | | 68 |
| Amount of low-lying and marsh land raised and drained ... ... | | | 972 |
| Number of pools, marshes, streams, &c., fish-stocked ... ... | | | *nil* |
| Number of cubic yards of material used for filling up pools and excavations... ... ... ... ... ... ... ... | | | 1,454 |
| Number of persons fined for making new excavations ... ... | | | *nil* |
| Average number of men daily employed in filling up pools, &c. ... | | | 6 |

## 16. Oiling.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... ... | | | 509 |
| Number of pools and excavations oiled ... ... ... ... | | | |
| Number of tanks and barrels oiled ... ... ... ... ... | | | |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... | | | 1 |

## 17. Inspections and Prosecutions.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 1 |
| Number of houses inspected ... ... ... ... ... ... | | | 8,258 |
| Number of houses where larvæ were found ... ... ... ... | | | 76 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... ... | | | 113 |
| Number of persons fined for having mosquito larvæ on premises ... | | | 76 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... ... ... | | | 386 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 226 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

(Sgd.)

# GOLD COAST.

No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town : QUITTAH.

| — | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | ½ square mile | *nil* |

### 2. Population.

| — | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 .. ... ... ... | | | | | |
| 1912 ... ... ... ... | 1,589 | 1,784 | 14 | 9 | 3,396 |

### 3. Housing.

| — | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... | | |
| 1911 ... ... | | |
| 1912 ... ... | 9 | 589 |

| Number of Huts :— | |
|---|---|
| 1910 ... ... ... | |
| 1911 ... ... ... | |
| 1912 ... ... ... | 261 |

### 4. Mosquito Protection of Houses.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | |
| Number rendered during the year wholly mosquito-protected ... | | | |
| Number rendered during the year partially mosquito-protected ... | | | |

### 5. Erection of New Buildings during the Year.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... ... | | | 2 |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 1 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... .. ... | | | 2 |
| Number of houses built without sanction ... ... ... ... | | | *nil* |
| Number of huts built without sanction ... ... ... ... | | | 2 |

ACTION TAKEN :—

| —— | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... ... | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | 2 | *nil* | 2 | *nil* |

## 6. MARKETS.

| —— | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | *nil* | 1 |

## 7. SLAUGHTER-HOUSES.

| —— | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | *2 | 2 | *nil* |

* 1 not yet in use.

## 8. LATRINES.

| —— | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 9 | 54 | 8 | 48 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... .. | *nil* | *nil* | *nil* | *nil* |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | 2 | *nil* |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... ... | | | 79 |
| Average number of pails of nightsoil removed daily ... ... ... ... | | | 118 |
| Average number of soiled pails removed and clean pails substituted ... | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta ... | | | 8 |
| Number of cesspools ... ... ... ... ... ... ... ... ... | | | 2 |
| Number of cesspools cleansed ... ... ... ... ... ... ... ... | | | *nil* |
| Number of new cesspools constructed during the year ... ... ... | | | |
| Number of old cesspools abolished ... ... ... ... ... ... | | | |
| Number of cesspools oiled regularly by Department ... ... ... ... | | | |

### 9. REMOVAL OF REFUSE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... ... | | | 10 |
| Number of carts (if employed) at work daily to remove refuse from streets | | | 2 |
| Amount of refuse removed daily from streets... ... ... ... ... | | | ½ cartld. |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... ... ... | | | 2 |
| Amount of refuse removed daily from yards and premises ... ... ... | | | 12 crtlds. |
| Number of men employed for moving refuse ... ... ... ... ... | | | 9 |

### 10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

| —— | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of Slaughter House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | 89 | | | *nil* | | | *nil* |
| Burnt ... ... ... ... ... | | | *nil* | | | 6½ | | | ½ headload slaughter house. |
| Thrown into sea ... ... ... | | | 29 | | | *nil* | | | 1 cart load market. |
| *Otherwise dealt with ... ... | | | | | | | | 6 deposited on lagoon side | |

* State mode of disposal.

### 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | ½ cartload buried |

### 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne Water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | *nil* |
| Number of stand pipes along roads... ... ... ... | | | |
| Number of stand pipes in compounds and houses ... ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | 6 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | *nil* |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | 62 |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... | | | *nil* |
| Tanks :— | | | |
| Public :— | | | |
| Number under ground ... ... ... ... ... | | | *nil* |
| Number mosquito-protected and served by pumps ... | | | |
| Number above ground ... ... ... ... ... | | | |
| Number mosquito-protected ... ... ... ... | | | |
| Number of 400 gallons capacity or less ... ... ... | | | |
| Number above 400 gallons ... ... ... ... ... | | | |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number under ground ... ... ... ... ... | | | 5 |
| Number mosquito-protected ... ... ... ... | | | 4 |
| Number above ground ... ... ... ... ... | | | 15 |
| Number mosquito-protected ... ... ... ... ... | | | 15 |
| Number of 400 gallons capacity or less ... ... ... | | | 5 |
| Number above 400 gallons ... ... ... ... ... | | | 6 |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... ... ... | | | *nil* |
| Iron ... ... ... ... ... ... ... ... ... | | | 15 |
| Concrete ... ... ... ... ... ... ... ... | | | 5 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... ... | | | 45 |
| Number mosquito-protected ... ... ... ... ... | | | 28 |

## 13. DRAINAGE.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Lineal yards of masonry drains :— | | |
| 1910 ... ... ... ... ... | *nil* | *nil* |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |
| Lineal yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... | *nil* | *nil* |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |
| Lineal yards repaired during the year :— | | |
| 1910 ... ... ... ... ... | *nil* | *nil* |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |
| Lineal yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... | *nil* | *nil* |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... | *nil* | *nil* |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... | *nil* | *nil* |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... | *nil* | *nil* |
| 1911 ... ... ... ... ... | | |
| 1912 ... ... ... ... ... | | |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 24,042 |
| Average frequency of clearance of rank vegetation on same area ... | | | Twice a year |

### 15. EXCAVATIONS AND LOW-LYING LAND.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... ... | | | 14 |
| Number of excavations filled up ... ... ... ... . . | | | 6 |
| Amount of low-lying and marsh land raised and drained ... ... | | | *nil* |
| Number of pools, marshes, streams, &c., fish-stocked... ... ... | | | 1 |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... ... | | | No record kept. |
| Number of persons fined for making new excavations ... ... | | | 6 |
| Average number of men daily employed in filling up pools, &c. ... | | | *nil* |

### 16. OILING.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled... ... ... ... ... ... ... | | | *nil* |
| Number of pools and excavations oiled ... ... ... ... | | | 58 |
| Number of tanks and barrels oiled ... ... ... ... ... | | | *nil* |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... ... | | | *nil* |

### 17. INSPECTIONS AND PROSECUTIONS.

| —— | 1910. | 1911. | 1921. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... ... | | | 1 |
| Number of houses inspected ... ... ... ... ... ... | | | 2,036 |
| Number of houses where larvæ were found ... ... ... ... | | | 63 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... ... ... | | | 33 |
| Number of persons fined for having mosquito larvæ on premises | | | 29 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... .. ... ... | | | 151 |
| Number of persons fined for not removing insanitary conditions after notice... ... ... ... ... ... ... ... | | | 90 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

# GOLD COAST.

## No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town : COOMASSIE.

| —— | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 3½ square miles | *nil* |

### 2. Population.

| —— | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... ... | | | | | |
| 1911 ... ... ... ... | | | | | |
| 1912 ... ... ... ... | 11,000 | 10,000 | 92 | 5 | 21,097 |

### 3. Housing.

| —— | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 40 | 1,941 |

Number of Huts :—

| | |
|---|---|
| 1910 ... ... ... | |
| 1911 ... ... ... | |
| 1912 ... ... ... | 100 |

### 4. Mosquito Protection of Houses.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | 4 firms. |
| Number rendered during the year wholly mosquito-protected ... | | | *nil* |
| Number rendered during the year partially mosquito-protected ... | | | *nil* |

### 5. Erection of New Buildings during the Year.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... | | | 3 latrines,<br>1 rest house. |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | 50 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... | | | *nil* |
| Number of houses built without sanction ... ... ... ... | | | |
| Number of huts built without sanction ... ... ... ... | | | |

ACTION TAKEN:—

| — | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 ... .. | | | | |
| 1911 ... ... | | | | |
| 1912 ... ... | *nil* | *nil* | *nil* | 1 |

## 6. MARKETS.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | *nil* | 1 |

## 7. SLAUGHTER-HOUSES.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 ... ... ... ... ... | | | |
| 1911 ... ... ... ... ... | | | |
| 1912 ... ... ... ... ... | 1 | 1 | *nil* |

## 8. LATRINES.

| — | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 28 | 153 | 28 | 140 |
| Number of new Public Latrines erected during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* | *nil* | *nil* |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 ... ... ... ... ... ... | | | | |
| 1911 ... ... ... ... ... ... | | | | |
| 1912 ... ... ... ... ... ... | 24 | *nil* | 24 | *nil* |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 ... ... .. ... ... ... | | | | |
| 1911 ... ... .. ... ... ... | | | | |
| 1912 ... ... .. ... ... ... | *nil* | *nil* | *nil* | *nil* |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines ... ... ... ... ... ... | | | 40 |
| Average number of pails of nightsoil removed daily ... ... ... | | | 293 |
| Average number of soiled pails removed and clean pails substituted ... | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta | | | 26 |
| Number of cesspools ... ... ... ... ... ... ... | | | *nil* |
| Number of cesspools cleansed ... ... ... ... ... ... | | | |
| Number of new cesspools constructed during the year ... ... ... | | | |
| Number of old cesspools abolished ... ... ... ... ... | | | |
| Number of cesspools oiled regularly by Department ... ... ... | | | |

## 9. REMOVAL OF REFUSE.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... | | | 1 |
| Number of carts (if employed) at work daily to remove refuse from streets ... ... ... ... ... ... ... ... | | | 20 wheel-barrows. |
| Amount of refuse removed daily from streets ... ... ... | | | 83·16 h'lds. |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... .. ... ... ... ... ... | | | 10 |
| Amount of refuse removed daily from yards and premises ... ... | | | 210·39 h'lds. |
| Number of men employed for moving refuse ... ... ... | | | 12 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

| — | Daily average number of pails of excreta. | | | Daily average number of cartloads of refuse. | | | Daily average number of cartloads of Slaughter-House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | 207·84 | | | 210·39 h'dlds. | | | 15.31 h'dlds. |
| Burnt ... ... ... ... | | | | | | | | | |
| Thrown into sea ... ... ... | | | | | | | | | |
| *Otherwise dealt with ... ... | | | | | | | | | |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | 3 cartloads |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | |
| Number of linear yards ... ... ... ... ... | | | nil |
| Number of stand pipes along roads ... ... ... | | | |
| Number of stand pipes in compounds and houses ... | | | |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | 11 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | 8 |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | 51 |
| Number partially protected against surface water and mosquito-protected ... ... ... ... ... | | | 51 |
| Tanks :— | | | |
| Public :— | | | |
| Number under ground ... ... ... ... ... | | | nil |
| Number mosquito-protected and served by pumps ... | | | |
| Number above ground ... ... ... ... ... | | | |
| Number mosquito-protected ... ... ... ... | | | |
| Number of 400 gallons capacity or less ... ... ... | | | |
| Number above 400 gallons ... ... ... ... ... | | | |

| | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number under ground ... ... ... ... ... | | | 2 |
| Number mosquito-protected ... ... ... ... | | | 2 |
| Number above ground ... ... ... ... ... | | | 20 |
| Number mosquito-protected ... ... ... ... | | | 20 |
| Number of 400 gallons capacity or less ... ... ... | | | 5 |
| Number above 400 gallons ... ... ... ... | | | 15 |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... ... ... ... | | | 5 |
| Iron ... ... ... ... ... ... ... ... | | | 13 |
| Concrete ... ... ... ... ... .. ... | | | 2 |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... | | | 120 |
| Number mosquito-protected ... ... ... ... | | | 120 |

## 13. DRAINAGE.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Linear yards of masonry drains :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | 800 yards | *nil* |
| Linear yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | *nil* | *nil* |
| Linear yards repaired during the year :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | 451 yards | *nil* |
| Linear yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | 440 | *nil* |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... .. | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | 16,036 | *nil* |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | 510 | *nil* |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | Monthly | *nil* |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| | 1910 | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 7,219,785 |
| Average frequency of clearance of rank vegetation on same area ... | | | 8 times yearly |

### 15. EXCAVATIONS AND LOW-LYING LAND.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... | | | *nil* |
| Number of excavations filled up ... ... ... ... | | | *nil* |
| Amount of low-lying and marsh land raised and drained... ... | | | 600 sq. yds. |
| Number of pools, marshes, streams, &c., fish-stocked ... ... | | | *nil* |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... | | | *nil* |
| Number of persons fined for making new excavations ... ... | | | 3 |
| Average number of men daily employed in filling up pools, &c. ... | | | *nil* |

### 16. OILING.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... | | | 10 daily |
| Number of pools and excavations oiled ... ... ... | | | 260 |
| Number of tanks and barrels oiled ... ... ... ... | | | *nil* |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... | | | 1 |

### 17. INSPECTIONS AND PROSECUTIONS.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... | | | {1 European<br>1 Native} 2 |
| Number of houses inspected ... ... ... ... | | | 58,200 |
| Number of houses where larvæ were found ... ... ... | | | 183 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... | | | 698 |
| Number of persons fined for having mosquito larvæ on premises ... | | | 183 |
| Number of notices served to remove insanitary conditions on premises ... ... ... ... ... ... | | | 886 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... | | | 392 |
| Number of soda and aërated water factories inspected ... ... | | | 1 |

# GOLD COAST.

## No.

## SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWN.

### 1. Name of Town : OBUASI.

| —— | Approximate area. | Number of proclaimed open spaces. |
|---|---|---|
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 4 square miles | 2 |

### 2. Population.

| —— | Number of Natives. | | Number of Europeans. | | Total. |
|---|---|---|---|---|---|
| | Males. | Females. | Males. | Females. | |
| 1910 ... ... ... | | | | | |
| 1911 ... ... ... | | | | | |
| 1912 ... ... ... | 2,182 | 1,614 | 192 | 1 | 3,989 |

### 3. Housing.

| —— | Number occupied by Europeans. | Number occupied by Natives. |
|---|---|---|
| Number of Houses :— | | |
| 1910 ... ... ... | | |
| 1911 ... ... ... | | |
| 1912 ... ... ... | 29 | 1,503 |

Number of Huts :—
1910 ... ... ...
1911 ... ... ...
1912 ... ... ... *nil*

### 4. Mosquito Protection of Houses.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of European houses wholly mosquito-protected ... ... | | | *nil* |
| Number of European houses with mosquito room ... ... ... | | | |
| Number rendered during the year wholly mosquito-protected ... | | | |
| Number rendered during the year partially mosquito-protected ... | | | |

### 5. Erection of New Buildings during the Year.

| ——— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ... ... ... | | | 2 |
| Number of houses erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... ... | | | 65 |
| Number of huts erected with sanction as to site, construction, and relation to other buildings ... ... ... ... ... ... | | | *nil* |
| Number of houses built without sanction ... ... ... ... | | | |
| Number of huts built without sanction ... ... ... ... | | | |

ACTION TAKEN:—

| — | Number of Prosecutions. | | Number demolished. | |
|---|---|---|---|---|
| | Huts. | Houses. | Huts. | Houses. |
| 1910 | | | | |
| 1911 | | | | |
| 1912 | *nil* | *nil* | *nil* | 121 |

### 6. MARKETS.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 | | | |
| 1911 | | | |
| 1912 | 3 | 2 | 1 |

### 7. SLAUGHTER-HOUSES.

| — | Total number. | Number paved and drained. | Number unpaved. |
|---|---|---|---|
| 1910 | | | |
| 1911 | | | |
| 1912 | 1 | 1 | *nil* |

### 8. LATRINES.

| — | For Males. | | For Females. | |
|---|---|---|---|---|
| | Number. | Number of Seats. | Number. | Number of seats. |
| Number of Public Latrines :— | | | | |
| 1910 | | | | |
| 1911 | | | | |
| 1912 | 7 | 54 | 7 | 54 |
| Number of New Public Latrines erected during the year :— | | | | |
| 1910 | | | | |
| 1911 | | | | |
| 1912 | 1 | 12 | 1 | 12 |
| Number of Public Latrines repaired during the year :— | | | | |
| 1910 | | | | |
| 1911 | | | | |
| 1912 | 7 | | 7 | |
| Number of Public Latrines demolished during the year :— | | | | |
| 1910 | | | | |
| 1911 | | | | |
| 1912 | *nil* | | *nil* | |

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of Private Latrines | | | 8 |
| Average number of pails of nightsoil removed daily | | | 120 |
| Average number of soiled pails removed and clean pails substituted | | | *nil* |
| Number of nightsoil men employed to clean latrines and remove excreta | | | 20 |
| Number of cesspools | | | *nil* |
| Number of cesspools cleansed | | | |
| Number of new cesspools constructed during the year | | | |
| Number of old cesspools abolished | | | |
| Number of cesspools oiled regularly by Department | | | |

## 9. REMOVAL OF REFUSE.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of dustbins ... ... ... ... ... ... ... | | | *nil* |
| Number of carts (if employed) at work daily to remove refuse from streets ... ... ... ... ... ... ... ... | | | *nil* |
| Amount of refuse removed daily from streets ... ... ... | | | 25 headl'ds. |
| Number of carts (if employed) at work daily to remove refuse from yards and premises ... ... ... ... ... ... | | | *nil* |
| Amount of refuse removed daily from yards and premises ... ... | | | 800headl'ds. |
| Number of men employed for moving refuse ... ... ... ... | | | 13 |

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

| — | Daily average number of pails of excreta. | | | Daily average number of headloads of refuse. | | | Daily average number of cartloads of Slaughter-House and Market Offal. | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. | 1910. | 1911. | 1912. |
| Buried or trenched ... ... ... | | | 120 | | | 25 | | | 2 |
| Burnt ... ... ... ... | | | *nil* | | | 800 | | | *nil* |
| Thrown into sea ... ... ... | | | *nil* | | | *nil* | | | *nil* |
| *Otherwise dealt with ... ... | | | | | | | | | |

* State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

| 1910. | 1911. | 1912. |
|---|---|---|
| | | 25 |

## 12. WATER SUPPLY.

| Nature of Water Supply. | 1910. | 1911. | 1912. |
|---|---|---|---|
| Pipe-borne water :— | | | |
| Source (river, lake or spring) :— | | | Spring |
| Number of linear yards ... ... ... ... ... | | | 2,200 |
| Number of stand pipes along roads... ... ... ... | | | 13 |
| Number of stand pipes in compounds and houses ... ... | | | *nil* |
| Wells :— | | | |
| Public :— | | | |
| Number ... ... ... ... ... ... ... | | | 6 |
| Number with pumps protected against surface water and mosquito-protected ... ... ... ... ... | | | *nil* |
| Private :— | | | |
| Number ... ... ... ... ... ... ... | | | *nil* |
| Number protected against surface water and mosquito-protected ... ... ... ... ... ... | | | *nil* |
| Tanks :— | | | |
| Public :— | | | |
| Number underground ... ... ... ... ... | | | *nil* |
| Number mosquito-protected and served by pumps ... | | | |
| Number above ground ... ... ... ... ... | | | |
| Number mosquito-protected ... ... ... ... | | | |
| Number of 400 gallons capacity or less ... ... ... | | | |
| Number above 400 gallons ... ... ... ... ... | | | |

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Tanks :— | | | |
| Private :— | | | |
| Number underground ... ... ... ... ... | | | *nil* |
| Number mosquito-protected ... ... ... ... ... | | | *nil* |
| Number above ground ... ... ... ... ... | | | 13 |
| Number mosquito-protected ... ... ... ... ... | | | 12 |
| Number of 400 gallons capacity or less ... ... ... | | | 7 |
| Number above 400 gallons ... ... ... ... ... | | | 6 |
| Nature of tanks :— | | | |
| Wood ... ... ... ... ... .. ... ... | | | *nil* |
| Iron ... ... ... ... ... ... ... ... | | | 13 |
| Concrete ... ... ... ... ... ... ... | | | *nil* |
| Barrels :— | | | |
| Number ... ... ... ... ... ... ... | | | 19 |
| Number mosquito-protected ... ... ... ... ... | | | 19 |

## 13. DRAINAGE.

| Nature of Drainage. | Public. | Private. |
|---|---|---|
| Masonry drains :— | | |
| Lineal yards of masonry drains :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | | 100 |
| Lineal yards reconstructed during the year :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | | *nil* |
| Lineal yards repaired during the year :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | | *nil* |
| Lineal yards of new drains constructed during the year :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | | *nil* |
| Earth drains or ditches :— | | |
| Number of linear yards of ditches cleaned :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | | 700 monthly |
| Number of linear yards of ditches dug and graded :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | | 300 |
| Average frequency of clearing ditches of grass :— | | |
| 1910 ... ... ... ... ... ... | | |
| 1911 ... ... ... ... ... ... | | |
| 1912 ... ... ... ... ... ... | | monthly |

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

| —— | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of square yards of weeds, grass, and vegetation cut and removed ... ... ... ... ... ... ... ... | | | 1,800,000 monthly |
| Average frequency of clearance of rank vegetation on same area ... | | | monthly |

## 15. EXCAVATIONS AND LOW-LYING LAND.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of pools and excavations ... ... ... ... | | | 2 |
| Number of excavations filled up ... ... ... ... | | | *nil* |
| Amount of low-lying and marsh land raised and drained ... | | | *nil* |
| Number of pools, marshes, streams, &c., fish-stocked ... ... | | | *nil* |
| Number of cubic yards of material used for filling up pools and excavations ... ... ... ... ... ... | | | *nil* |
| Number of persons fined for making new excavations ... ... | | | *nil* |
| Average number of men daily employed in filling up pools, &c. ... | | | *nil* |

## 16. OILING.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of drains oiled ... ... ... ... ... | | | 15 monthly |
| Number of pools and excavations oiled ... ... ... | | | 2 " |
| Number of tanks and barrels oiled ... ... ... ... | | | 19 |
| Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ... ... ... | | | 1 |

## 17. INSPECTIONS AND PROSECUTIONS.

| — | 1910. | 1911. | 1912. |
|---|---|---|---|
| Number of inspectors employed ... ... ... ... | | | 2 |
| Number of houses inspected ... ... ... ... | | | 66,000 |
| Number of houses where larvæ were found ... ... ... | | | 31 |
| Number of notices served to remove conditions causing the breeding of larvæ ... ... ... ... ... | | | *nil* |
| Number of persons fined for having mosquito larvæ on premises | | | 31 |
| Number of notices served to remove insanitary conditions on premises... ... ... ... ... ... ... ... | | | 276 |
| Number of persons fined for not removing insanitary conditions after notice ... ... ... ... ... ... ... | | | 239 |
| Number of soda and aërated water factories inspected ... ... | | | *nil* |

## 1911.

## RULES FOR THE GUIDANCE OF SANITARY COMMITTEES.

1. (*a*) In all towns under the Towns Ordinance which are also Headquarters of a District (excepting those under the Town Councils Ordinance and those alluded to under (*b*) of this rule) a Sanitary Committee shall be formed consisting of the District Commissioner as Chairman, the Medical Officer as Secretary and the Senior Officer of the Public Works Department or, in his absence, such other person as may be appointed by the District Commissioner.

(*b*) In towns under the Towns Ordinance at which, although Headquarters of the District, only one Officer is stationed the Officer in charge shall be Chairman of the Committee and shall nominate as members two other persons.

2. The Sanitary Committee, two members of which shall constitute a quorum provided that the Medical Officer is present (except under the conditions stated in 1 (b), where the Officer in charge of the station must always be present), shall meet on the second Monday of each month and shall forward a copy of its proceedings to the Senior Sanitary Officer.

3. The duties of the Committee shall be :—

(*a*) Collectively to make suggestions as to the Sanitary improvement of the Headquarters Station.

(*b*) Individually (1) to report to the Committee any insanitary condition observed when visiting other towns in the District.

(2) To supervise sanitation of the Headquarters Station and for this purpose the town shall be apportioned in three divisions each of which shall be under the supervision of a member of the Committee.

4. When inspecting their Sub-Districts members of the Committee will note especially :—

(*a*) The presence of any tins, bottles, or other receptacles or conditions likely to favour the breeding of mosquitoes in the compounds, streets or purlieus of the town.

(*b*) Whether vessels used for catching or storing water and wells, underground tanks, etc., contain mosquito larvæ or are mosquito-proof.

Each member will report to the Committee any insanitary conditions discovered by him in the course of such inspections.

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## 1911.

## DIRECTIONS FOR THE GUIDANCE OF THOSE LAYING OUT A NEW VILLAGE AND FOR THE SANITATION OF VILLAGES.

1. A suitable site should be selected from which to obtain soil for the purpose of making swish, and constant supervision should be exercised to prevent the formation of mosquito-breeding puddles on the site.

Inhabitants of villages should only be allowed to take soil from such place as has been selected for this purpose.

2. Plans of the village should be prepared, as well as plans for future extension, in order to secure the laying out of the village on sanitary principles.

3. Provision should be made for sites for latrines, dustbins, slaughter-house, market place, cemeteries, cattle-pounds, refuse destructors, and a piece of land well away from the town should be set aside for a treatment area in the event of a pan latrine system being subsequently introduced.

This area should be calculated at the rate of an acre for every 1000 inhabitants.

4. A clearing should be made for at least 50 yards around each village, the big trees being left, and beyond this area the natives should be encouraged to cultivate the soil.

5. If the village water supply is derived from a river or stream :—

(*a*) A washing place should be selected below the point from which the natives take their drinking water.

(*b*) The banks of the river or stream should be cleared of all bush except the big trees, for a distance of 50 yards on each side of the places used by the natives for obtaining drinking water or for washing purposes.

(*c*) The path between the village and the stream should be kept well clear of bush, except for big trees, for a distance of 30 yards on each side.

6. The streets should be straight and intersect one-another at right angles. The principal ones should be so constructed as to be in the direction of the prevailing breeze.

7. No street or road in a village should be of less width than 30 feet clear of verandahs and no back lane of less than 15 feet, *i.e.*, in front of the house there should be a roadway of at least 30 feet, and behind the backyard of the house a lane of 15 feet.

8. Houses should be built in continuous lines with an alignment, in their front and rear, to be prescribed by the local authority, and demarcated on the ground.

9. Between all detached houses abutting on the roadways of the village there should be a space of at least 9 feet measuring from eaves to eaves or of 12 feet between houses. This space, together with the backyard, may be enclosed by the respective owners by boundary walls not higher than 6 feet.

10. The floor level of the house should be raised at least one foot above the centre of the road.

11. Not more than two-thirds of the house site should be covered with buildings.

12. Where a dwelling house abuts on a courtyard its height measured from the level of the courtyard or street should be less than its horizontal distance from the face of any opposite house.

13. A sufficient number of persons should be employed to :—

(*a*) Keep the village and its surroundings clear of all bush and long grass.

(*b*) To collect and bury all old bottles, tins or other disused vessels capable of holding water.

14. Incinerators should be erected to burn all refuse. A plan of a simple and inexpensive form of incinerator can be obtained, on application, from the Senior Sanitary Officer.

15. Wherever possible wells should be lined with concrete, protected from surface pollution by means of lips or curbs and provided with pumps. A plan of the Macgregor type of well can be obtained, on application, from the Senior Sanitary Officer.

16. If latrine pits are used they should be roofed over, their edges banked up and drains should be cut round them to keep out storm water. A quantity of dry earth should be stored under the roof and persons should be told off to sprinkle dry earth over the contents of the latrines at least twice a day.

17. Provision should be made for the carrying off of storm water by surface drains.

18. As houses fall into decay an attempt should be made to reconstruct the village on the lines laid down in paragraph 6 to 12.

All ruinous buildings should be demolished and the debris removed.

## HOW TO AVOID BEING PROSECUTED BY THE SANITARY INSPECTORS.

1. Mosquitoes cause Fever and other diseases, which cause the deaths of half your children, therefore, if you and all who live in the house wish to enjoy good health do what you can to keep your house free from mosquitoes.

2. Mosquitoes lay their eggs on the water contained in chatties, tanks, barrels, gutters and in the water contained in old tins, pots and bottles lying about the compound. From the eggs the little wrigglers are hatched out and these after a few days turn into mosquitoes.

If you do not believe this put some wrigglers in a bottle, tie mosquitoe gauze over the top of it and look at the bottle every day. In a few days you will find the wrigglers have disappeared from the water and mosquitoes will be seen flying about in the bottle above the water. The wrigglers have changed into mosquitoes. Do not believe that wrigglers exist in all water; they cannot get into water except from the eggs laid by mosquitoes on the water. Every fowl's egg must be laid by a hen and so must every mosquito's egg be laid by a mosquito.

3. If you wish to keep your house free from mosquitoes take the following simple measures to prevent mosquitoes laying their eggs in, and so introducing wrigglers into the water vessels in your house or compound.

(*a*) Make the tank mosquito-proof.

(*b*) Make the barrel mosquito-proof.

(*c*) Grade your gutters or punch holes in them so that water will not lie in them after the rain has ceased to fall.

(*d*) Collect all the old pots, tins and bottles in the compound and take them to the nearest dust-bin.

(*e*) *Last and not least* always wash out each chatty every day before pouring into it fresh water brought in from outside.

If you do this the Sanitary Inspector will never find wrigglers in your chatties and will not trouble you.

4. The Sanitary Inspector will always help and shew you how to do all this.

5. The Sanitary Inspector does not want to trouble you by taking you to Court, but he knows that if there are wrigglers in every compound soon the town will be full of mosquitoes then there will be much sickness, perhaps even an Epidemic and Quarantine.

Try to help the Sanitary Inspector by taking a little trouble to do the simple things you have been asked to do and so prevent Court Proceedings, Sickness, Epidemics and Quarantine.

T.G. (20,000) 192D 12.

# SIMPLE DIRECTIONS FOR THE GUIDANCE OF PERSONS BUILDING HOUSES IN TOWNS AND VILLAGES NOT UNDER THE TOWNS ORDINANCE.

1. Houses should have not less than 18 inches of stone foundations below ground.

2. If walls are built of swish they should be swish plastered and lime-washed inside and tarred outside.

3. Windows should be made on both sides of each room in order to secure cross ventilation.

4. Each room should be designed to attain the following requirements per head, viz. :—

   240 cubic feet of air space.
   20 square feet floor space.
   5 square feet of ventilation area.
   The light space should be not less than one eighth of the floor space.

5. Verandahs should not be closed in.

6. Floors should be one foot above the highest ground level and, if possible, cemented.

7. Compounds should drain into the nearest street drain.

8. The floors of wash-houses should be raised above the level of the compound and should be made to drain into the street drain.

9. Roofs should not be made of thatch.

10. Water tanks should be raised at least 18 inches above ground level.

11. All receptables used for storing water should be mosquito-proof.

C.F. 5,000. 321D 12.

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